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A

HOME TOUR

THROUGH THE

MANUFACTURING DISTRICTS

OF

ENGLAND,

IN THE SUMMER OF 1835.

BY

SIR GEORGE HEAD,

AUTHOR OF

“FOREST SCENES AND INCIDENTS IN THE WILDS OF NORTH AMERICA.”

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A HOME TOUR

IN THE

MANUFACTURING DISTRICTS OF ENGLAND,

IN 1835.

CHAPTER I.

L I V E R P O O L.

Water Communication to Manchester—Town of Runcorn—Duke of Bridgewater's Canal Basin and Works—Old Quay Company's ditto—Weston Point—Runcorn-Ferry—Establishments of the St. Helen's Railroad and Sankey Canal—A tall Chimney—Manner of raising the same—A Voyage by the Duke's Canal—Reckless Riders—A Voyage by the Leeds and Liverpool Navigation Canal—Aqueduct—Fare on board—Filthy Quays at Wigan—Fellow-Travellers—A Faux-pas—An Amphibious Husband—A newly married Couple—Cannel Coal—A Voyage by the Old Quay Company's Canal—Dirty Companions—Viaducts.

Two Steamers, The Duke of Bridgewater and The Eclipse, ply daily from St. George's Dock, at Liverpool, to Runcorn. The former carries passengers for the Duke of Bridgewater's Canal packet-boat, and the latter for that of the Mersey and Irwell Navigation, or Old Quay Company, to Manchester. Besides these two parallel lines of communication by water to Manchester, there is also a third, though rather more circuitous, by the continuation of the Duke's Canal, which falls into that of the Leeds and Liverpool navigation at the town of Wigan.

It is worthy of remark, that notwithstanding the

abundant means of conveyance of passengers and merchandise between Liverpool and Manchester, afforded by the canals, as well as by numerous land vehicles, previously established, of various descriptions, the proprietors of the railroad commenced their undertaking and brought it to a successful issue, in spite of such serious competition.

The magnificence of the various works in and about Runcorn, contrasted with the size of the town itself, is particularly striking. The double chain of locks belonging to the Duke's Canal; the quays of the same establishment, and those of the Old Quay Company; the dock basin connecting, at Weston Point, the town of Northwich, by the river Weaver, with the Mersey; as well as the St. Helen's Railroad and the Sankey Canal—all these objects may be considered, even at the present day, as specimens of splendid workmanship; forming also five separate grand channels of communication, all meeting in one point.

From the outer dock-gates of the Duke of Bridgewater's Canal, the twin chain of locks, which surmounts by a sudden rise the height of nearly a hundred feet, affords a double facility for the vessels which trade upon it, while an imposing spectacle is created by the numerous craft, when, mounting from the river, they are seen one above another, rising together, in two lines, to the summit. On each side, during the ascent, are appropriate reservoirs, and in each lock the water is let in and out through channels cut in the side walls, instead of, as is usual, by sluices in the gates. The adjacent paths are covered with red burnt shale from the founderies; and the economy of space preserved in the premises ap-

propriated to the quays and warehouse is very remarkable. The latter is a striking object on the banks of the river, exceeding in size most other buildings in the country of a like description; and as the canal communicates by a cut of four miles with Preston Brook, bearing by that route the vast freight of the potteries and the metropolis, the general indications of traffic, especially with the former, are on an extraordinary scale. The enormous heaps of material piled up, ready for embarkation, would be sufficient, one would think, to freight all the barges on the line for months to come; consisting of the substances used in the manufacture of British china—such as flints from Kent and Sussex, pipe-clay from Devonshire and Dorsetshire, besides a soft stone containing abundance of mica from Cornwall and Wales. At the same time, so perfect is the allotment of space, that the whole extent of ground is laid out with the care and order of a pleasure-garden; the enormous heaps of flints and other materials, each neatly piled and labelled with the owner's name, being intersected by highly kept walks, while the red shale aforesaid is, in colour and consistence, better suited to the purposes of use and ornament than any kind of gravel whatever. Close to the river, near the magazine, stands the late Duke's house—a temporary residence which he occupied while the locks were building, in order to superintend the works; and upon this spot, then a bleak and barren point, an aged labourer informed me he had frequently seen him pacing backwards and forwards, even at midnight, during the summer months, absorbed in meditation.

In order to secure sufficient depth of water at the

outlet of the canal into the Mersey, which here presents a flat, sandy bottom, and is not navigable further at all times or seasons, a channel was originally made by cutting off and insulating a small projecting nook of land. Hence the tide passing freely both at ebb and flood, has, I believe, always uniformly produced the desired effect,—namely, that of clearing away the mud of each succeeding tide, which would otherwise form a bar, and obstruct the entrance.

Notwithstanding the number of tons of flints and stone unladen weekly on the Duke's quays, it is somewhat singular that, in disregard of the present improved state of machinery, the primitive process of weighing by hand has not as yet been abandoned or superseded. Every individual stone passes through an ordinary scale. The machine is placed on the quay, and the stones are slung out of the vessel by a rough sort of crane, weighed, put in a wheelbarrow, in drafts of about three hundred weight, and wheeled along a line of planks to the place of their destination. A considerable number, it is true, of these scales are in work at the same time, though, after all, surely some quicker operation might be devised.

The quays of the Mersey and Irwell Navigation, or Old Quay Company, are nearly contiguous to those of the Duke, a few hundred yards higher up the river. As the two rival lines of water-communication from hence to Manchester proceed nearly parallel to each other, one cannot help, at first sight, awarding the palm of victory to the noble spirit that gallantly faced the hill at starting, in the infancy of science, and with unknown difficulties ahead, leaving the

humbler task of crawling along the Mersey and the Irwell to succeeding projectors.

Adjoining the canal-basin of the latter establishment there is a patent slip, for the purpose of drawing vessels out of the water previous to repairing them. It is on a small scale, suited only to vessels of two hundred tons or thereabouts, and the machinery is different altogether from that at Whitehaven, hereafter described. In this the windlass, instead of being at the side, and moving vertically, is in the middle, and moved horizontally, by men pushing at ordinary levers. The frame on which the vessel is moved, is merely a couple of strong beams resting upon a double row of stationary rollers.

Weston Point, at the mouth of the Weaver, the outlet of the canal and water-communication leading to Northwich, is about a mile below the canal of the Duke of Bridgewater. Considerable alterations and improvements are here in progress. The principal object is to render perpendicular the walls of the oblong basin, which were originally built in a slanting direction, and as an additional space is also intended to be taken in on one side, the whole together will very considerably extend its dimensions. Even at present, the numerous fleet of sturdy shallops to be seen at times within its gates, is very remarkable; and the embankment and wall by which the works are enclosed and protected on the north from the torrent of the Mersey, is, from its length and strength, equally worthy of notice.

It is singular that among the numerous projects of the day, that of throwing a bridge across the Mersey at Runcorn, although formerly proposed by an emi-

ment engineer, has never been effected. In the first place, the public are ferried across by a couple of men, who are not always to be found at a moment's warning; next, the landing-place at Runcorn is at all times extremely incommodious; and thirdly, that on the other side is still worse; in fact, at low water, the passenger here steps out of the boat on a plank, lands on mud and sand, and after walking on this compost upwards of a hundred yards to the ferry-house, he has then a mile to proceed at all events, whether bound to the establishments of the St. Helen's Railroad, or towards those of the proprietors of the Sankey Canal, which canal leads in a parallel direction with the railroad to St. Helen's.

These two establishments, whose dock-gates, of twenty-one feet in depth, open adjacent to each other on the Mersey, afford a wonderful picture of pent-up opulence; for here, from the upper level, a fleet of small craft, and numerous coal-waggons, are continually to be seen collected and waiting the flood of the tide, in order to throw their cargoes on the river below, so soon as the waves shall cover the bare and deserted sands.

In the outskirts of the town, on the premises of a soap and soda manufactory, one of those stately circular chimneys which are becoming every day more general in the country, has been lately built for the purpose of carrying off, by means of flues communicating far and wide among the buildings, all noxious *effluvia* arising from the works. These noble specimens of modern brick-work answer the object for which they are intended to perfection; and, certainly, in populous cities, might, by collecting the smoke from numerous and different points, and dis-

emboguing the whole in a body high in mid air, be applied to general domestic purposes. At first sight, as regards danger, the extreme height seems a startling objection, though, in fact, the consideration is but trifling; for a small walled space would insure public security, and enclose a base sufficient to receive, even were the building to fall, the whole of the materials.

The chimney in question is, I believe, the highest in England,—that is to say, ninety-two yards, or two hundred and seventy-six feet to the top of the coping, just seventy-four feet higher than the Monument in London. It is an arduous service, in raising a structure to such a giddy height, to those whose lot is constant exposure to the fury of the four winds, increased to an appalling degree by the altitude; nevertheless, the work was chiefly performed by two men, who never left the job from beginning to end. At times, as was related to me, they were assisted by others; but the higher the building proceeded, the more fastidious the latter became and discontented, generally contriving, in default of other causes of complaint, to quarrel with their companions. But all were invariably silent as to the true reason of these capricious antipathies,—simply, the fear of falling. The diameter of the chimney at the bottom, from outside to outside, is thirty feet,—the slant an inch and a half in the yard at each side. The thickness of the wall at the bottom is nine bricks in length, diminishing to a brick and a half at the top.

I happened to be present, in the summer of 1834, while this building was in progress. The operation was curiously performed without scaffolding, by means of a platform of boards at the top, which was

gradually raised higher and higher as the work proceeded. The bricks and all other materials were hauled up the inside of the building by a horse, the bricks especially being dexterously bound together, in parcels of about a wheelbarrow load each. The horse walked onwards away from the building, in a straight line, a bell always sounding when each load was ready—with this signal the animal was fully acquainted. As the length of the rope was the same as the height of the building, I had no difficulty, by pacing the extent of the horse's walk, to ascertain the elevation: which at that time was one hundred and fifty feet.

Having determined to make a voyage by each of the three conveyances before alluded to, after a pleasant passage of little more than two hours on board the Duke of Bridgewater steamer from Liverpool, I stepped on board the canal packet-boat at Runcorn at about ten o'clock in the morning. As, previous to starting, the boat is always stationed on the summit of the locks, it is necessary to have the passengers' luggage conveyed hither on the backs of porters. The vessel was tidy and clean, with a first and second class cabin raised upon the deck; the roof flat, and benches provided to accommodate those who might prefer to sit on the top.

This mode of travelling, to an easy-going individual, provided it be not repeated too often, is far from disagreeable;—without troubling himself with the world's concerns, he sits basking in sunshine, and glides tranquilly onwards through a continuous panorama of cows, cottages, and green fields, the latter gaily sparkling in the season with buttercups and daisies, and as to safety, provided he takes no

I.]

RECKLESS RIDERS.

pains to fall into the water, no conveyance can be so secure. It is true, that during a great part of the voyage there exists a very considerable drawback to the comfort of the traveller, for within a dozen miles of Manchester, the water of the canal is black as the Styx, and absolutely pestiferous, from the gas and refuse of the manufactories with which it is impregnated. It is proposed, however, to avert this evil by turning the course of the fetid stream elsewhere, though go where it may, the future line of its direction will not probably be agreed upon unanimously. The boat was towed at the rate of about five miles an hour by a couple of clumsy cart-horses, driven beyond their natural pace, and working under such manifold disadvantages that full half the strength of one horse was continually exerted to prevent itself from being dragged into the canal by the other.

Those acquainted with the good qualities of the animal need not be told that to break a horse no other art is necessary than to conquer his temper; and that a light hand on the bridle is, in point of fact, rather an appeal to his moral than his physical nature. Servants and postboys are nevertheless, above these considerations; and, in the present case, the two small boys, and their unfortunate horses, were lost to the sympathies of a lively state of muscle and a well-tutored mouth. The former, whipped and kicked with as genuine insensibility as if sitting across a tree; while the latter, tugging and reeling, exhibited a perfect specimen of ill-applied force, one literally pulling continually one way, and the other another. In the meantime, the thoughtless riders, in worsted stockings, with thick country-

made shoes, healthy and active, jumped on and off, according to their fancy, without stopping the boat or creating delay. Sometimes running for a quarter of an hour together, they mounted when tired, in a way of their own, by merely placing a foot on the chain trace, and a hand on the belly-girt. These little fellows, neither more than twelve years old, rode every day the whole distance,—one day up, the next down,—two-and-thirty miles, hot or cold, wet or dry, winter or summer. We were six hours on the voyage, arriving at four o'clock at Manchester.

The next day I returned to Liverpool by another canal route, the Leeds and Liverpool Navigation. This packet-boat starts from Manchester at six o'clock every morning. We pursued the course of the Duke of Bridgewater's Canal towards Runcorn, till we left this line by a branch which proceeds to Wigan. At one point, a few miles from Manchester, the Duke's canal passes over the river Irwell, the track of the Old Quay Company, by help of an aqueduct, which is not only above the river, but also above the turnpike road from Liverpool to Manchester; whereby, as if things were turned upside down, coaches and boats may be seen at the same time passing, the boats above and the coaches below—and thus, in the triumph of human art, reversing the order of nature. The appointments of the boats, and the pace maintained, were precisely the same as the day before. There are several locks by the way; and the time expended from Manchester to Liverpool was fourteen hours. I saw certainly no wonders on the route; and particularly, on a second experiment, a heavy sameness naturally arises out of the first conditions of the mode of peregrination,

namely,—that of moving on a level; whence it follows that the horizon is very generally bounded by the banks. The boat was narrow, and the two cabins were rendered independent of each other, by the intervention of the steward's berth; the platform at the top, as in the Duke's boat, common property, resorted to by all.

Breakfast and dinner were provided on board at one shilling each meal, the steward very properly judging, that as custom exacted from his stores on both occasions nearly the same quality of viands, no matter what were the name of the repast, his customers would eat as much at one as the other. Not even the most fastidious could complain of high charges. The dinner consisted of a salted sirloin of beef, garnished with a profusion of fried onions; and afterwards appeared, as if it were intended to lower the temperature of the stomach, a second course, of radishes and lettuces, together with a good mild cheese. Notwithstanding the delights of the table, the voyage seemed desperately long, particularly while we were detained for half-an-hour for the purpose of loading and unloading at the town of Wigan. Here a "compound of villanous smells" past all endurance rendered the delay in this place that of purgatory. Nothing can surpass the untidiness and filth of this warm nook, where the boats are made fast to a quay, which has more the appearance of a landing-place in Lisbon than Old England. As regards society, those on board were what is usually called a "mixture of company," the second cabin being quite as full as it would hold.

Notwithstanding the absolute safety of the mode of conveyance, we were nevertheless very near meet-

ing with two serious accidents on the voyage. First, a woman contrived to pitch herself head-foremost off the top of the platform, where she was sitting, down upon the deck, and fell with such violence that I really thought she must have been killed. As it happened, she was not hurt, on ascertaining which point I was contented to make no further inquiries, for as I picked her up, she sent forth a sigh, so strongly impregnated with rum, that I was happy to consign her collapsed form into other hands. The other adventure was performed by a quiet, decent, respectable man, who either meditatively or inadvertently, but from a cause somewhat similar to the one aforesaid, unluckily, in attempting, on one occasion when the boat stopped at a village, to step on shore, somehow or other misjudged his distance, and though he did step out of the boat, as it were very methodically soused into the water. In one moment he was up to his neck, and holding on by a set of red fingers to a plank on the shore. When pulled on deck, he stood helplessly streaming and snuffling; in the mean time the manœuvre was so unprovoked and uncalled for, that he excited nobody's pity, not even that of his wife—who, on the contrary, scolded him unmercifully. The lecture she administered caused even amusement among the by-standers, and was really sufficient, not only to recall the circulation of the blood, but set galloping all the humours into the bargain. The unfortunate fellow, suffering by such a ducking, and afflicted with such a wife, had but few words to offer in behalf of himself; and of these, every effort to articulate produced, rather than a human tone, a sound that more resembled the snort of a hippo-

tamus. How he contrived to arrange his toilet among so many people I do not know, but he soon appeared again on deck in a dry pair of bright nan-keens.

Among the tenants of the best cabin were a newly-married couple—if such a description can reasonably be given of two young people travelling with a little infant, their first-born, and a nursery-maid in their train. However, the pair presented an interesting study of nature, were it only with reference to the different degrees of dominion and power in which mankind exult, and also because it made manifest the very numerous ways there are in the world of being happy. I think I never saw a couple more rich in their own conceits, or more inclined to be satisfied with themselves and the things about them, notwithstanding all these were on an extremely small scale. In the first place, the husband was a slight, weasel-shaped man, like a stunted stay-maker;—the wife, little;—the child, by appearance, an abortion;—and the maid-servant, little,—fresh from the country, with clattering thick-soled shoes, and hair tied back, evidently on her promotion, in a little knot like a shaving-brush; the length of one's thumb. The man and wife smirked and smiled first on each other, and then both gloated with eyes of affection on the dear baby. The lady was anxious to show to the rest of the passengers that she kept a maid-servant, therefore ever and anon called her from one part of the vessel to another to give some trifling order. The little maid, nevertheless, seemed truly happy, and the more the child cried, the more she jiggled it, and the more her active eyes travelled round and round, first towards one person

and then another, sparkling with delight as she inhaled the pure fresh air. When the child dropped asleep, the mistress immediately summoned the little abigail and set her to work on pieces of glazed, crackling linen contained in her bag, in order that she should not be even for one moment idle. The child, lastly, was happy, for it was an ill-conditioned little thing, that delighted in crying, and it certainly must have cried to its heart's content; and the more it roared the more its papa's eyes glistened as, suggesting this, that, and t'other remedy, he obediently received pins from the hands of his spouse and stuck them in his sleeve.

On arriving at Scarisbrick Bridge, a little to the northward of Ormskirk, omnibuses and luggage-carts were waiting for the conveyance of passengers to Southport, a watering-place near the Ribble, and distant about six miles, with which place the citizens of Manchester keep up a continual communication by means of the canal. Vehicles leave Southport at nine in the morning, meet the Liverpool boat on her way to Manchester, and remain at Scarisbrick Bridge until four o'clock, the usual time for the arrival of the boat moving in the opposite direction.

Adjacent to the canal basin at Liverpool the ground is covered with enormous heaps of coal sent by the canal from Wigan. Hence, fly-boats depart to Crosby and other places in that direction, eight times a-day. I observed here abundance of Cannel coal, and took some pains, both now and subsequently at Kendal, St. Helen's, and other places, to obtain the meaning of the term. Some is procured at St. Helen's, but the greater quantity comes from Wigan, and is dug out of the same shafts with

ordinary coal, though existing in different seams. It appears to be a substance between ordinary coal and jet. In Liverpool, and elsewhere, it is advertised by boards and placards—"Coal and Cannel sold here." And is invariably spelt "Cannel." If it have really taken its name from Kendal, the people of the town are not aware of such origin; neither is there any reason that it should originally have been called Canal coal, it having been dug before canals were adopted, and transported together with larger quantities of ordinary coal. It seems to be the general opinion that having been used to light the men at their work, and serving as candle, it became by corruption "Cannel" coal. It is singular how soon words and phrases creep into use, and totally obliterate every recollection of the cause that produced them.

In order to proceed from Liverpool to Manchester, by the third and last canal route, I got on board the Eclipse steamer, at the dock of the Mersey and Irwell Navigation, or Old Quay Company, at twenty minutes before nine, and before eleven o'clock we arrived at Runcorn. The basin and docks here, and at Liverpool, belonging to this establishment, by no means equal in appearance those of the Duke of Bridgewater; in fact, a comparison throws them many degrees in the background.

At Runcorn, indeed, we came to anchor close alongside the packet-boat; an obvious convenience to passengers, compared with the ceremony of consigning their luggage to a porter, and toiling to the top of the hill—the level of the Duke's canal. This advantage, however, is counterbalanced in the long run. The difficulties, in one instance, are all sur-

mounted previous to the commencement of the voyage; in the other, the delay and trouble of passing the numerous locks is experienced during its continuance. This boat is of a heavier construction altogether than that of the Duke, the cabin, instead of on the deck, being below, as in ordinary river or sea boats; and it is towed by three horses instead of two; the middle horse moving on between the other two, unriden. Two boys rode in the manner and style before described; without stirrups, resting their feet on the traces, sometimes high, sometimes low, according as the horse lay on his collar. Neither wore coats, and their trousers were as ragged as those of a scarecrow. The whole fare from Liverpool to Manchester was the same as before, viz., 3s. 6d. We left Runcorn precisely at twenty minutes after eleven, and arrived at a quarter before six. A rough set of people composed the company on board, amongst whom it appeared not to be the fashion to pay first cabin fare; neither did it seem necessary, for no restriction was enforced among the passengers, nor maintenance of vested rights. All classes were jumbled together; groups of men and women dirtily dressed and noisy. The former smoked tobacco, and guzzled beer; so also did the latter, besides occasionally picking periwinkles out of their shells with pins. My powers of endurance here entirely failed me, and having no redress, I abandoned my invaded territory, and removed to the other end of the vessel in search of good company. Although the course of this navigation chiefly leads through the Mersey and Irwell rivers, the prospect is chiefly shut out by winding, muddy banks, so lofty that at least seventy yards of tow-

rope are used; the extremity of which is fastened high on the mast above the cross-trees. The first artificial cut of the canal commences at starting, and continues for about eight miles; the others on the way are of less extent. Having halted for a short time near the town of Warrington, we continued our passage, with little exception, on the Mersey, till arriving within ten miles of Manchester, at the confluence of the Mersey and Irwell rivers, which two streams are at this point equal in point of width, we proceeded for the rest of the voyage up the latter river.

The line of the new railroad from Manchester to Birmingham crosses the canal and the river Mersey, at a point where both run parallel within a few yards of each other, by a viaduct now in progress of erection about half a mile below Warrington.

Two other viaducts are also building on the same line between Warrington and Northwich. These viaducts are both to be thrown across the river Weaver, within five miles of each other; the one two miles below Northwich, and half-a-mile below the bridge at Hartford, which bridge I paced, and found to be twenty-five yards across. The viaduct is to consist of four arches.

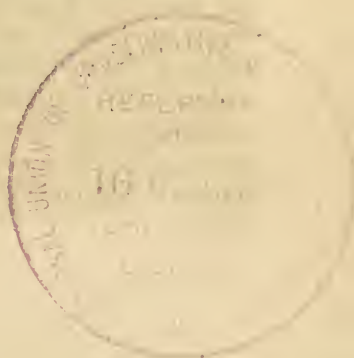
The above work I did not see in progress, except from the distance of half-a-mile, as I stood on the aforesaid bridge; but I walked to the other, which is a great work, at a place called Dutton-bottom. This viaduct crosses the river Weaver, and the canal parallel to it, both together, by twenty arches of sixty feet span, and sixty feet high from the crown of the arch to the bottom of the piers. The piers, in breadth eight feet, appear rather slight in propor-

tion to the dimensions of the work ; however, the bottom is thoroughly sound, nor is there any obstacle in the way of the architect. I paced the temporary bridge over the river Weaver, at this spot, forty-five yards in length. A horse windlass was erected on the summit of the steep bank descending to the river, on the southern side, in order to move materials up and down. The workmen were then preparing to commence the first arch—most of the piers were already finished, and it afforded a noble sight while standing on the elevated ground on one side, to look across to the other, and see the vast structure rising from below. As I understood, the versed sine of the arches which spring from the piers is fifteen feet six inches.

I remarked an appliance I had never seen before attached to the travelling crane, which latter contrivance is now generally adopted throughout the country, in every great work. Instead of giving the transverse motion to the crane by hand, at the top—that is to say, by men who, being at the top, push it along by hand ; the same purpose was effected by means of two small cranes, one on each side, which, being connected by a rope with the crane at the top, were worked by men at the bottom. The description of the travelling crane will be found in the chapter relating to Whitby.

I could not help thinking, as I saw the enormous stones of six and eight tons lifted up and down by means of the wedge and Lewis hole, that this simple and ordinary contrivance might possibly easily be applied to more general purposes. If, wherever stone is accessible, a purchase of eight or ten tons is obtained, by making a small hole three or four

inches deep, an operation easily performed in the same number of minutes; it follows that, in order to obtain upon a stationary rock a point of resistance, by means of more holes, the effect might be almost indefinitely multiplied.



CHAPTER II.

L I V E R P O O L.

Quays at Liverpool—Docks—Great Tunnel—Warehouses—Conveyance of Pigs—Passage through said Tunnel—Railway Station at Edgehill—Clever Mode of unloading Luggage—Landing a Cargo of Pigs from Ireland—A Perambulating Boar—A Sailor's House of Call—A Dutch Artist—Railway Clock—Equilibrative Index—Keel's Hotel—A Cheap Dinner—A Diligent Young Lady—New Brighton—Low Seacombe—Wallasey Pool—A Woodside Pony—Biddestone Hill—Lighthouse; Veteran in charge—Filial Fidelity.

To a stranger either landing upon the quays, or departing from Liverpool, the order and regularity with which the process of debarkation and embarkation is conducted are very remarkable. The commodiousness and magnificence of the docks are sufficiently well known; in extent, without other means of judging than by the eye, they appear, even now, at least equal in area to those of the metropolis, independent of new ones, of considerable dimensions, now in a state of forwardness, both to the north and south of the present line. Few vessels ride at anchor in the Mersey: the lading and unlading is altogether performed in the docks, the river being usually shallow, and the anchorage bad; at all events, the channel of deep water is too narrow to allow vessels to remain stationary in the stream, without impeding the navigation. I have heard it urged, as a matter of complaint, that the space immediately adjoining the docks, and belonging to the corporation, is preserved intact, and no buildings permitted to be erected thereon, whereby extra cartage is in-

curred to the warehouses at a distance within the town. Yet it certainly does seem, that to this very regulation or prohibition are to be attributed, in great measure, the good effects alluded to.

Contrary to the usual order of things in a seaport town, and in London especially, where, going towards the water-side, one feels as if entering by the broad end into the spout of a funnel—here the broad end opens the other way, whence the nearer one advances towards the point of embarkation, the greater appears the freedom of space.

On the extensive area of St. George's Dock, no idlers obstruct the way, no obstacles of any description impede the passenger. Whether a single person, a boatload, or a shipload of people either go or come, is an object of consideration only to those whom it may directly concern ; and though, at a vessel's arrival or departure, a temporary collection of persons is discernible on the landing-place, the assembly merely consists of travellers, who, in a few moments, together with all their baskets and bundles, are lost in space. In the meantime the policeman steadily treads the ground, backwards and forwards on his station, having seldom occasion to accost an individual in the execution of his duty.

As the Liverpool Docks occupy already an unintermitting line along the banks of the river, verging upon three miles in length, the facilities above referred to are in part accounted for : added to which, all that knowledge can suggest, or experience confirm, has combined to render the action of every one great outlet clear of the other. The three principal separate points are, first, that of St. George's Dock, where the numerous passage-boats ply, many of them

every half-hour in the day, to the various little watering-places in the Mersey; and passengers embark, and return to and from every part of the world;—secondly, the Clarence Dock, and those appropriated to the American trade, at the north end, the former exclusively containing steamers;—and, thirdly, the large docks in the immediate neighbourhood of the new Custom-house, to which those of the Duke of Bridgewater and of the Railway establishment are immediately adjacent,—all these latter being at the south end of the line.

Hence, by the great tunnel, merchandise is conveyed under the town to the railway station at Edgehill. This vast subterraneous excavation, a mile and a quarter in length, viewed either with regard to the purposes to which it is applied, or its execution, as a channel of conveyance for live cattle, timber, and all sorts of merchandise, through the bowels of the earth, and below the site of a populous town, is a truly wonderful performance. I obtained permission, on one occasion, to pass through it; and though the passage was performed in utter darkness, it did not the less strongly interest me. This tunnel, and the splendid warehouses and quays at its mouth, are an indication, and a true one, of the vigour with which the projectors of the railway grappled with the undertaking. Besides the various established channels of communication with Manchester which previously existed, and with which the railway necessarily had to compete, the operations on this spot exhibit in addition a specimen of almost unlimited expenditure; an outlay against which, as a question of profit and loss, the proprietors also contended, and, in spite of which, their shares have attained, never-

theless, nearly a duplicate value. A pleasing example is here afforded of the energies of the country, as well as, an earnest, *in prospectu*, of the general advantages likely to be derived by the extension of steam-communication to London,—advantages, I am fully persuaded, too great to be fully estimated, till they are really felt.

It is quite impossible to describe, within brief compass, the beauty and symmetry of the arrangements which prevail among the warehouses, and within these extensive premises. Nevertheless, I was permitted, as a stranger, to contemplate the scene unnoticed and unmolested; either to walk from end to end, or pause for the purpose of observing the address and despatch with which multitudinous affairs were conducted. Among the many objects that diverted my attention, I particularly remarked the facility with which logs of timber, of the largest dimensions, and all descriptions of bulky and heavy materials were slung on the carriages; the great size of the *Dobbin wheels*, ten feet in diameter, occasionally employed; and also the extreme length of the ordinary Liverpool cart, for the conveyance of cotton bags, eighteen feet from the tail-board to the point of the shaft, which latter is totally overhung by the body, with the exception only of four feet. The load of these carts, drawn by a couple of horses, is about three tons. Among the timber lying on the ground ready to be sent by the carriages on the railway, I measured one stick, of which there were several others as large; it was a piece of squared timber, two feet the side of the square, and fifty-seven feet long. As they allow regularly four tons to a carriage, and not unfrequently carry five,

and as, to convey timber, two carriages are sometimes lashed together, a full load may be estimated at ten tons.

Among the various cargoes put on the carriages with the greatest ease and despatch, are pigs ; a fact which shows what management will effect ; and, though strange, is at least true. Indeed this branch of business is so well assorted, that though, as to locality, the animals previous to departing on their journey are upon equal terms with the men and merchandise, yet as to actual juxtaposition they might as well be five miles asunder. This desirable object is effected by means of a back entrance into a pig-yard, where all the herds that arrive, on their way to Manchester, find accommodation. Hence there is a small door to a wooden platform, the latter leading, by an inclined plane, to the carriage standing on the railway, close to the mouth of the tunnel. The pigs enjoy this right of road unmolested, and, in point of fact, step quietly out of their drawing-room into their vehicle, each as easily as an old dowager into her chair waiting in the *vestibule*.

On the occasion of my passing through the tunnel before alluded to, I sat in the foremost carriage of a train, by which were conveyed, among merchandise of many descriptions, a quantity of pigs and live cattle. The carriages were drawn about three hundred yards within the mouth of the tunnel, upon a level, by a single horse, which, at the foot of the inclined plane, was unhitched and sent back. Preparatory to the ascent, the foremost carriage was made fast, by a messenger line, to the endless rope communicating with the stationary engine at the east end, when, at the signal of a bell, the wire of which

reaches the whole length, viz., a mile and a quarter, the engine commenced its labours, and we trundled onwards in the dark at the rate of eight or ten miles an hour. There are, indeed, lights at rare intervals within the tunnel; but, nevertheless, by far the greater part of the distance is performed in total darkness. As we passed along, the effect produced by a train which came rumbling downwards, by its own gravity, in an opposite direction, was awfully grand. The approach of so stupendous a body rushing towards us in the dark, generated a sound like that of distant artillery; while its conductor sat in front, holding in his hand a small glimmering lantern. The whole together brought the regions of Pluto before my imagination, while the hogs grunted, and the calves lowed in funereal cadence, like a legion of discontented spirits.

Appearances were not less singular as we approached the opening at the extremity; the objects without being seen through a long dark tube, which gave them the semblance of shadowy, unearthly forms, enveloped in mist. On emerging from the tunnel at the rail-way station at Edgehill, the high, rising banks on either side, presenting, especially eastward, a lofty cloven passage through the divided rock, for the trains to Manchester, proclaim the spot, though lighted by the rays of the sun, a subterranean area. Nearly parallel to the outlet already described is the small tunnel for passengers to the booking-office, from whence they are conveyed into the town by ordinary carriages; however, this latter is now about to be superseded by a third spacious tunnel, by which, from a point farther to the east-

ward, access will be had underground to the centre of Liverpool.

The manner of travelling by the Liverpool and Manchester rail-road is now too well known to need any description ; yet the oftener it happens to me to witness a train on its arrival, or preparatory to its departure, the less I can refrain from attentively observing the excellence of the arrangements. In the first place, the mode is admirable, by which a hundred people or more are passed through the booking-office, one after another, each moving on, and followed by his neighbour, through a sort of gate, whereby all are allowed to take their time, without impeding or being impeded by each other. Again, on the arrivals, it is curious to see twenty or thirty carriages, containing scores of people inside, and a large proportion of luggage on the top, unladen, and observe how quietly, rapidly, and dexterously to every man is handed his own, so that, in three or four minutes all the wheel-carriages in waiting are laden and gone. The luggage being at the top of the carriages, nobody but the authorized porter is allowed to ascend. A platform of boards is then raised, forming an inclined plane to the ground, and down which every box or trunk is slid, and handed to its owner by one of two porters, stationed one on each side at the bottom. How perfect is this contrivance, compared with the common mode of unloading a stage-coach, where a lady's bandbox may, if not narrowly watched, radiate out of her sight in a crowd, in any direction ! Here, no article whatever, be it where it may, can possibly be overlooked or unseen by its owner, all being collected at the top

of the carriages in one single point, from which they necessarily slide along, one after another, down the same channel.

I went to the Clarence Dock to see a cargo of pigs which had arrived on board the steamer Drogheda, from Belfast, together with a number of oxen, sheep, and geese, unladen from Ireland. The pigs, contrary to my expectation, quietly walked out without any remonstrance, upon planks placed zig-zag upwards all the way from the hold.

The service of attending a cargo of pigs, and remaining in their company below,—considering that the flavour rising from their hides is so strong as to taint a column of air a mile long or more, and nobody knows exactly how broad,—must be really arduous. Such attendance is, however, absolutely necessary, and regularly performed, in order to stir the creatures up, as the only means, being so closely packed, to prevent their suffocation. At all events, on the present occasion, the men below did their duty manfully, in a hot and corrupted atmosphere. As each pig walked up the platform, Paddy behind with a small switch, whenever the animal attempted to swerve, merely persuaded him with a delicate touch on the rump. The animal probably mistaking this for the bite of a fly, gently placed one leg forward; which was no sooner set in its place, than another tickle of the switch on the other side caused him to advance the other. An Irishman can certainly, in common cases, do more with his pig than the native of any other country; and, no doubt, mainly owing to treating the beast with kindness. A very short time ago I met a man leading a large boar in a string through the town of Litchfield. It was not

necessary to inquire whither the latter and his gentleman usher were going, but I could not help stopping to have a little conversation with the man, to which the boar, with a playful glance of his eye, actually seemed to be listening. The creature followed his master as willingly as a dog, being simply confined by a leathern thong, which loosely encompassed his thick neck; I was assured that kind treatment alone had brought him to his present perfect state of discipline. Once or twice during the time the man stopped, it is true the boar seemed anxious to proceed; and though he did not put forth his strength, his weight alone called for a counter-acting power. Accordingly, to stop him, the man, placing one foot against his flank, as a purchase, the other meanwhile resting on the ground, laid his shoulders to the draft, and pulled him off his centre.

On the parallel road, immediately contiguous to the docks, stands a building, formerly a windmill, which having been some years ago accidentally destroyed by fire as to the internal part, has been converted into a marine hotel, or place of entertainment. It is not inaptly called the Rotunda Steam-packet Tavern, and certainly bears indications likely to allure merchant sailors and other persons of seafaring habits, those who know how to enjoy most of life's comforts within small space, to enter for recreation. A flat roof, leaded, and furnished with benches, and a flag continually flying thereon all the year round, affords a *gazebo*, whence Jack, as he whiffs his pipe and boozes, may at the same time preserve a communication on board, and telegraph his messmate in the offing. The circle being that

of all mathematical figures, containing the most space within least periphery, the assortment of apartments is consequently such, that while at all times a snug cabin is to be obtained for parties of every description, a bedroom also may be had on occasions of emergency.

It really is quite extraordinary to observe how completely every atom of space has been turned to account within this dwelling, the apartments far exceeding, both in number and size, any probable computation to be formed without actual inspection. Supposing the building at the bottom to be thirty feet in diameter, as I believe it is, one might reckon, on each floor, a room for every ten or even nine feet of circumference. The staircase and chimney, which pass through the middle, exhibit a *chef-d'œuvre* of the architect, who has contrived the former as it were of extension without breadth or thickness, to serve all purposes, and yet stand in as little space as a ladder. All disputes of precedence must, at all events, either be settled at the top or the bottom; and, in fact, it is so extremely narrow, that, though I did not examine the chimney, I should think it made little difference whether a man crawled up one or the other.

In one of the streets leading to the docks, Hanover Street, I observed in the window of a very small shop, two clocks, each of so singular construction, that I was induced to enter for the purpose of looking at them. The owner of the shop was a poor Dutchman, an artist, by name Drielsma, who claimed no other merit than that of having merely invented the clocks, which as they told the hour much after the same manner as other people's, had nothing to

recommend them, except that they set about their work in a different way. Nevertheless, surely the application of a new principle, though not of itself to be turned to immediate purpose, is always interesting, and fairly to be estimated a step in the scale of science. In the meantime, no other measures were taken by Drielsma to bring his clocks into notice (that of taking out a patent being, owing to his circumstances, quite out of the question), than to prepare a huge sheet of elephant paper to receive the names of bountiful and scientific contributors. The paper was headed in beautiful text, and contained a brief statement of his object. The space below,—blank * * Besides the two clocks aforesaid, I saw very little furniture in his apartment, more than some watchmaker's tools, a few brass wheels, and an eye-glass.

The first of these clocks was what he termed a Railway clock, inasmuch as, when placed on the top of a small inclined plane, it descended slowly by its own gravity, that is to say, about eight inches in thirty-six hours, and by the action of its descent wound itself up. Therefore the owner had nothing to do but merely occasionally to lift it from a lower point on the plane, and place it on a higher. The inclined plane was an ornamental mahogany frame, in shape like an ottoman, the railway being formed by two brass parallel serrated ridges extending from top to bottom. The clock was in shape a cylinder, one of the vertical sides of which formed the dial plate.

The other clock consisted, in the first place, of an hour-circle a couple of feet in diameter, having a pin in the centre to receive the index. The hour-circle

was fastened perpendicularly to the wall, and the index lay upon the table. When the index or hour-hand was put on the pin, the machine resembled to all intents and purposes a small church clock; but the curious act of its performance was, that the hour-circle being against the wall, and the hour-hand on the table, as before said, the index need only be put on the pin, and spun round like that of an E O table, when, *mirabile dictu!* it always stopped at the hour. And being, moreover, once set in its place, it continued to traverse the hour-circle like the hand of an ordinary clock.

The way I accounted for the operation was this. The index was at one end barbed like an arrow, while at the other end was a little watch, having one hand that traversed a dial marked with divisions. There was, I imagine, a small weight within this little watch, moving round the circular periphery, which weight, as it changed its position, altered the centre of gravity of the index. Being at the extreme point of its orbit, that is, at the greatest distance from the point of the barb, it would naturally predominate with the greatest force against the other end, and fall to the bottom; when the index would point to twelve o'clock. On the contrary, when the weight reached the nearest point of its orbit, it would act with least force against the other end, which other end would in its turn fall to the bottom, and point to six o'clock. The above stated motions being gradual, and not sudden, an equilibrium must be effected in every part of the circle, so as to attain the end proposed.

A few weeks subsequent to my visit to the artist, I happened to enter a magnificent shop containing

all sorts of costly articles of *vertu*, at Buxton; where among other objects of curiosity; I observed one of poor Drielsma's Railway clocks. I recognized it in a moment, and immediately made inquiries on the subject. The gentleman in the shop replied that the article was one made by Drielsma, who had, he said, contracted to supply him with a certain number of them. I did not quite understand the remainder of the history, which related to some dispute about the articles of contract. However, as far as I could collect, something being the matter with one of the clocks, he opened it, either to see whether anything was wrong in the inside, or to endeavour to mend it; and not succeeding in either of the two objects,—he quarrelled with Drielsma.

I would recommend any grumbling discontented person to pay a visit to Liverpool, merely for the purpose of witnessing a specimen of the art of living well and cheap, as regards the very important affair of dinner. There, chance led me on one particular occasion to Keels's Hotel, which is, I think, in the large street leading from the Mansion House to St. George's Dock; however, at all events, it is what is called highly respectable, both as to its position and elevation. Having mistaken the hour of departure of one of the boats, I was directed hither by the policeman, who, to his recommendation, added in an awful cadence, that "the magistrates themselves very often dined there."

When I entered the coffee-room, nearly a score of people were seated at different tables, some with their hats off, others with their hats on, but all busily eating their dinner, and a chair and a table were provided for myself by a good-looking and very

smartly dressed young woman, who officiated as waiter. Constant communication was held with the bar at the head of the room, at which three or four other females presided. Upon inquiring what I could have for dinner, the young lady produced the *carte*, whence it appeared that there really was everything that an Englishman could possibly desire, in the matter of roasted and boiled meats, meat pies, and pastry. Neither was the adage, "*bis dat qui cito dat*," within these walls forgotten, for here a hungry man has no sooner made his selection, than in half a minute the smoke of the dish is actually curling under his nose. I think I never partook of a more glorious round of beef than that of which a plateful was now placed before me, together with a delicate lily-white heart of a young cabbage. Next came a delightful apple dumpling well sugared, the fruit transparent, and the crust excellent. The garniture of the table was homely but clean, the dishes and covers of queen's metal, as highly polished as silver. And after having eaten a sufficient quantity to satisfy any reasonable appetite, the charge for the whole was only one shilling. To conclude—I asked a gentleman sitting at an adjoining table how much it was customary to give the waiter, to which he replied, with a look of surprise,—nothing. Had I not come to the same conclusion long before, I certainly should have arrived at it now, namely, that so long as a man can procure so very good a dinner for a shilling, and be waited upon by a tidy young woman into the bargain, England cannot be, in spite of a vast deal of modern philosophy, so very bad a country to live in.

The young person referred to was really the pink

of her profession, her movements being quiet, quick, dexterous, and I may add, graceful in a great degree. With no one to assist her, she waited upon not less than a score of people, who were no sooner satisfied than they went away, and were replaced by others; so that the whole set were nearly changed twice over during the half hour I remained in the room. Her eyes were in every corner at the same moment, so that every guest found his wants attended to, as soon almost as he was aware of them himself. At all events she was in perpetual motion, dropping a fork to one, a piece of bread to another, craving pardon of a third, as she reached across the table for a huge mug, and in the attitude of a flying Mercury, exposed precisely as much as was decent and proper of a well turned leg, and then away she would go to another quarter, wriggling about, in a way of her own, or in the French style, as if her feet were tied together, like a figure on wheels wound up by clock-work. Such an active being surely never could be still,—even in her sleep.

The more numerous the company in the room, the more rapid the succession of her smiles; these she dispersed gratuitously all around; every man in the room was sure to obtain one, if he happened to be young, certainly two, yet business was always uppermost in her mind. Sometimes she simpered and flirted, and now and then put on a languishing air, as if suffering either by Cupid or the hot weather; no item, meanwhile, of things furnished on any body's account was forgotten in the bill, as she went on from morning to night, attending to the interests of her employer, serving the customers, and continually moving between the coffee-room

and the bar. In short, no ant was ever seen at his work more lively and busy.

Notwithstanding this incessant occupation, she found time for her toilette, and to arrange her dress in the style of a smart lady's maid; that is to say, she wore a figured muslin gown with full sleeves, a small black silk apron, stays tightly laced, clothes well put on, feet neat to perfection, and lastly, a cap adorned with blue ribands, covering a profusion of ringlets.

Twelve months had rolled away, when afterwards on paying to this hotel a second and last visit, I saw the same young woman, on the same spot, performing the duties of the same office, in precisely the same manner, and in the same good humour with herself and all the rest of the world; and there still, I have no doubt, any other body who chooses to make the experiment, in twelve months more, provided she be not already selected as a matrimonial partner, may also find her.

I crossed the Mersey in a small steamer which leaves St. George's Dock every two hours in the day for New Brighton, one of those small watering-places that abound on the Cheshire side of the river, on that peninsula which divides it from the river Dec. New Brighton, chiefly indebted to individual speculation for its existence, is on the northern extremity of the peninsula aforesaid, contiguous to the battery and lighthouse. The landing at low water is at present decidedly bad; though means will probably by-and-by be taken to make it better; in the mean time no objections can be made on the score of safety, the punt on which we were received out of the steamer, being so thick-timbered and

steady, that were all the people she could contain to stand on one side, their whole weight would be insufficient to bring that side down to the water. This punt having been pushed from the vessel by poles thirty or forty yards nearer the shore, which was very flat and sandy, we all walked out along a platform, balanced in the middle on high wheels, one end of which was laid on her gunwale and the other on dry ground. The time allowed to the passengers before the departure of the steamer back to Liverpool is, half an hour; sufficient, if an individual be brisk, to explore the wonders of this new watering-place.

The coast at this point, like that of a great part of Lancashire, consists of sand-hills; among these some new small houses have been built, besides a few villas with young growing plantations and gardens. Every thing here, however, is in embryo, the place, three or four years ago, having been a barren sand-bank, producing nothing but scanty blades of rushy grass, and here and there a bush of furze. The ground has been subjected to tillage in the vicinity of the houses, and I saw a field of good wheat under the hands of the reapers; this sight rather surprised me; the corn, nevertheless, was free from weeds, bright in the straw and heavy in the ear—the more interesting, as the land had been neither more nor less than pure sea-sand; amended by marl and “*sea sluch*,” a black substance dug below high water mark on the sand of the sea-shore. Although the voyage hither from Liverpool is only a quarter of an hour, a total change of scene is produced in that period of time, and, the undulations of the sand-hills afford many a sequestered spot,

whence, with a total abandonment of the cares of the town, the citizen of Liverpool has an opportunity of enjoying, during his few vacant hours, a delightful mountain prospect towards the Welsh coast, and pure sea air.

It is rather extraordinary, that so little communication exists between these small ports on the Cheshire side of the Mersey,—that there is in fact no better conveyance from one to the other than *via* Liverpool. However, though the New Brighton vessels ply only once in two hours, those of High Seacombe, Low Seacombe, Woodside, and Birkinhead, depart every half-hour. There are also two or three other such places of daily resort, of which I make no mention, as I did not visit them.

At Low Seacombe an elevated spot is arranged as a tea-garden, whence a fine view is afforded of the lofty brilliant red brick walls and the docks of Liverpool. Here, on a summer's evening, may be seen, in a happy state of recreation, both young and old, the former seated in bamboo verandahs, and arbours matted with evergreens, while the latter are amusing themselves, some of them fat fellows in their shirt sleeves, by trundling bowls across the lawn, or playing at quoits.

Low Seacombe, which by the way is higher up the Mersey than High Seacombe, is divided from Woodside, the port next above it, by Wallazey Pool, a large inlet or creek, within which the tide ebbs and flows its whole length, viz., about three miles. Its direction being to the north-west, or thereabouts, it may be said almost to cut off the tip of this tongue of land. Notwithstanding that it is immediately opposite the town of Liverpool; na-

vigable at high water for small craft almost to its extremity ; and that a nobler site for docks to any extent cannot be imagined, nature having almost formed them there already ; it has been hitherto, with some trifling exceptions, wholly neglected, especially on the southern or Woodside shore, the greater part of which belongs to the corporation of Liverpool. Without entering upon the affairs of corporate bodies, or their local transactions, it is easier to imagine why the inhabitants of Liverpool should seize upon, and retain so valuable an adjunct to their possessions merely for the sake of rescuing it from the hands of others, than to account for the inertness of the Cheshire people in letting it go. In the mean time, owing to the collision of interests, it is of little use to any body ; while the line of Liverpool docks on the opposite shore is extending both on the right and on the left. There is not even a ferry across it, or any communication between Low Seacombe and Woodside, except by crossing to Liverpool and back again.

This natural harbour being allowed thus to lie waste, one cannot avoid coming to the conclusion, that the neglect is, to use a common expression, all in the way of business, while business in this money-getting town predominates even in the midst of pleasure ; in fact, all these small watering-places tend to show how incompatible one is with the other, and afford a pleasing example of the difference between recreation and dissipation. At Woodside even, seven minutes' passage across from Liverpool, and lying in the main road to the metropolis and Wales, the houses are all of small size, and an attempt a few years since to build a square, contain-

ing what would merely be called, after all, "good houses," has utterly failed. The town is a place chiefly of daily sort, whither people arrive by the boats, for a few hours, or the whole day, and return back to Liverpool; passing the time as they think fit,—the men in the coffee-rooms, the women and children in excursions in cars or on donkeys.

Besides the mail-coaches and public conveyances between Woodside and Chester, a coach runs daily to Parkgate, a small watering-place on the Dee, from whence the ferry crosses to the town of Flint, in Wales. This coach is chiefly supported by the people who supply from thence the Liverpool market. The sands are covered with abundance of cockles, and passable at low water on foot to the extent of five or six miles, or as far as the channel of the Dee, which river keeps the opposite shore.

As I was walking from Woodside towards Biddestone lighthouse, the day being hot, I heard the clattering of hoofs behind me, and was accosted by a little boy, with the offer of a pony. I at first thought the whole troop were donkeys; but, on a second glance, I did certainly perceive that one of the quadrupeds really was a pony. The boy had just emerged, with his long-eared squadron, from the village of Biddestone, on his way to Woodside, in order to pick up customers for the day.

The colour of the steed in question was a light sandy dun, a black streak extending the whole length from the withers to the tail; which mark of distinction not only assimilated him to the rest of his companions, but, from long habits of intimacy, his manners had become so near akin to theirs, that in reality he was, morally speaking, just as much a jackass as a horse.

Such as he was, I immediately engaged his services, upon paying a shilling down, with a promise of more, according to time, on delivery. I was also furnished with a stick into the bargain, which latter I soon found was doomed to considerable wear and tear in my service, the pony being of a nature at all events not to be ridden away with. In a few minutes he was tied up to a rack of hay in a stable belonging to the lighthouse.

Biddestone Hill, about three miles from Woodside, commands an extensive view of the country inland, while the forest of signal-poles, with which the lighthouse is surrounded, give it, at a distance, an extraordinary appearance—that of a dock or harbour on the top of a hill. Hence the merchant-vessels bound to Liverpool are signalled and telegraphed in the offing, the poles alluded to bearing the private signals of different individuals. And what must be remarked as rather singular is, that, notwithstanding the arduous duty which necessarily falls on the station, the whole is performed, almost exclusively, by young women—daughters of the veteran in charge. The old man, thus ably supported in the winter of life, is four-score years old, and has held the office upwards of forty years. Although boys are employed to run backwards and forwards, out of doors, with colours to the poles, and haul them up; and one of the three young women is married, and occasionally assisted by her husband; yet it is she who, being perfect in the whole code of signals, performs the responsible part of the duty. This couple were both at work together at the time I arrived, the young woman keeping the look-out, and calling the numbers, while the man, merely at

her bidding, pulled the ropes. She not only kept him employed, but managed meanwhile to iron a shirt into the bargain.

The business of the youngest sister is to attend the light, consisting of eleven Argand lamps, with plated reflectors. By her, every four hours during the night, the lamps are trimmed; by her are these, the stove, copper, oil-jars, and paved floor, preserved in a state of cleanliness not to be exceeded; and, no doubt, the mariner, on the wintry and stormy night, while this modest and interesting young creature presides over his destinies, may fearlessly confide his life and safety to the tender, never-failing care of—
woman.

CHAPTER III.

S O U T H P O R T.

A Jumbling Journey—An Intellectual Banquet—‘The Bold Arms’—The Town—Rough Pavement—Drifted Sand—Sand Hills—Superficial Springs—The Sands—Ladies bathing—Decent Regulations—Male Bathing—Women—Sailing Parties—Ladies in a Twitter—Studios Young Ladies—A Donkey Party—The animal Duke—Giggling and Galloping—Eggs and Bacon—Rustic Sports—A Horse Laugh—Dipping for Money in Treacle—An Undutiful Grandson—A good-humoured Multitude—Maghull Races—The Ruffian and his Bull Dog.

NOTWITHSTANDING the town of Southport is much frequented as a watering-place; is pleasantly situated within a few miles of the river Ribble, twenty-two miles from Liverpool; and may be fairly called the metropolis of the parish of North Meols; it has been dignified as yet with a position in but few modern maps.

The journey thither alone, without taking into consideration the salubrity of the spot, is equal to a physician's prescription. Two coaches depart from Liverpool every day. Both these vehicles are set upon extraordinary rough springs, while the road nearly all the distance is paved with large stones; so that it is reasonable to hope that the grievous jolting inflicted on a passenger during his journey, may at least be conducive to his bodily health. These paved roads, I imagine, on a sandy bottom, setting comfort aside, are the most economical. As, for the last few miles before arriving at Southport, the way lies across a flat moor, the sound of the coach-wheels, on

a still day, may be heard a long way off, whence people, having nothing to do, and anxious for the arrival of their letters and newspapers by the said coach, stand at their doors listening to the rumbling noise which, like the roll of a drum, lasts for near a quarter of an hour; and thus they await their intellectual banquet with as much eagerness as the hungry subaltern longs for his dinner, when he hears the tune of "The Roast Beef of Old England."

The line of sand-hills which stretch for a considerable distance along the coast form a conspicuous object before arriving at the town; the approach to which is, as it were, by a diminutive mountain-pass, where the sand lies drifted across the road, to such a depth that the utmost efforts of the cattle are required to drag the vehicle along.

The first house in the town is "The Bold Arms," a large square edifice, and though slightly built, an inn where the traveller may put up with a chance of going farther and faring worse. They who keep the house are kind people, the terms extremely moderate, and a common table is provided for the visitors during the summer season: that is to say, breakfast is served at eight in the morning, dinner at half-past one, and tea at six; whence complaints are rare as to late hours.

The town consists of one very wide, straight street, in length a full mile, and parallel with the sea; the line of perspective stretching apparently to an interminable length; while a few transverse streets diverge at right angles. The long street aforesaid passes as it were through the sand-hills which extend parallel to it on either side. The houses are chiefly

dwelling or lodging houses; among them very few shops, and all unequal in size, with plenty of space preserved to allow a small railed lawn or garden to each. The pavement, after the fashion of the Liverpool road, consists of large stones, and on each side, for the advantage of pedestrians, or rather, that of shoemakers, the side-paths are constructed of smaller ones, more acute than I ever remember to have walked upon—except in a stable. For this reason thick-soled shoes are indispensable at Southport, and these should also be made to fit close in the quarter, as now and then at the crossings the sand lies ankle deep.

The drift of sand is so great at times during a gale of wind, that the effects are serious. Many of the gardens in the transverse streets are filled with mountains that overtop the house, overwhelm the lower apartments, and which no one, from their size, thinks of removing.

The walking within the town is certainly not good. Without, there is the choice of the sea-shore, or the sand-hills; in the latter the wayfarer usually sinks up to the knees, except immediately after a smart shower of rain, in which single instance the sand binds instantaneously, concedes free leave and license to range over the tops of these mimic mountains, and affords ready means to visit spots which, only half an hour before, were all but inaccessible. It is really with extreme pleasure that treading upon a hardened surface one then explores recesses where nothing but the sky is to be seen, and which seem as wild and solitary as an Arabian desert. Rabbits burrow here abundantly, with little or nothing ap-

parently to feed upon ; and small green lizards, of a colour beautifully vivid, are plentiful. A species of very ugly toad, not common, is also here met with.

I could not help thinking, with reference to the vast tract of land lying thus waste under the form and figure of sand-hills, that it might, at a comparatively trifling expense, provided the operation were carried on gradually and by slow degrees, be converted into a sheep-walk. No matter how thin the top-soil ; the great difficulty being once overcome, that of causing the first adhesion, it follows that the moment sheep could walk upon it, then by being fed off, the surface must increase rapidly. By the application of *sea sluch*, of which there is plenty on the sea-shore, this object might, I think, be effected ; for instances may be seen, in the vicinity of the town, where a bed of indigenous yellow trefoil has advanced upon the sand-hills, and grows luxuriantly upon a bottom almost of pure sand.

The land-springs in the town and its vicinity are so near the surface of the ground, that, literally speaking, a donkey being on level ground may, any where, and at any time, provided he be thirsty, scratch a hole with his fore foot, and therein slake his thirst. I saw a labourer digging to plant a post a few yards only from "The Bold Arms," reach water at three feet. The wells in the town are generally five feet, of which the water stands at half the depth.

The uplands are divided into very small fields, and fenced by ditch and bank, as strongly as any part of Ireland.

From the door of "The Bold Arms" a deep sandy road leads straight to the sea-shore, the line of high

water being about three or four hundred yards distant. The wide extent of the sands is peculiarly striking ; stretching to the north and south, and, if at low water, seaward also, as far as the eye can reach. On the north, the white houses of the town of Lytham glisten in the sun, their site being at the mouth of the river Ribble, which obstacle, the breadth being foreshortened in the distance, is not perceptible. Southward an individual may ride along the shore the greater part of the way to Liverpool ; and, as the sea recedes at low water full a mile and a half, as far as regards liberty and range of prospect, the eye may wander over an area equal at least to twenty square miles.

Everywhere, the sands at Southport convey to the mind a strong impression of solitude ; for though the number of people residing in the town, citizens of Liverpool and Manchester, is always considerable, the line of promenaders, extended and broken, is lost in space so as to be in appearance greatly underrated. The visitors, like the rabbits from their holes, pop in and out from their houses, by the cross streets leading through the sand-hills, down to the shore and back again, as their idle moments dictate, by ones, and twos, and threes ;—tired of being in the house and tired of being out of it, now and then grouping together in small straggling parties at the approach of high water. On this occasion a sort of high change and congregation adds enlivenment to the scene ; but as the waves rapidly recede, the ladies, young and old, disappear into the town ; the same vacant watery plain again appears, and the gulls and sand-pipers remain undisturbed till the next tide.

The ceremony of ladies bathing is accompanied with some peculiarities. Owing to the rapid rise and fall of the tide they are obliged to be particularly quick in their movements, so that not only those who are about to dip are as busy as bees, but likewise the mothers, and aunts, and sisters, and cousins, and friends, who attend them. And perhaps it is this appearance of bustle that always attracts a gang of idlers who, having nothing better to do, stand by and look on. Notwithstanding a painted board, placed in a conspicuous position in the rear of a score or upwards of bathing machines standing in a line, explicitly decrees that those of the gentlemen shall not advance nearer than one hundred yards to those of the ladies, I did not remark any specific regulations enforced as to distance among the spectators, which point seemed otherwise decided by common consent to everybody's satisfaction. However, all pleasure-boats are prohibited from approaching within the distance of thirty yards, under the penalty, in case of contempt of the regulation, of five shillings ; a fine which, under the circumstances, cannot be called exorbitant. I am not aware how it is proposed to adjust a case of disputed distance, some favour being properly due to the variation of the steersman's eye on such an occasion ; the fine has been calculated, probably, by those best able to assess the damage, and affords the means of turning, in these liberal days, even a lady's charms to the good of the parish. While the insulted fair one becomes a public benefactress, the gentleman fined, provided his eyes be tolerably good, has no cause to complain of the draft on his purse ; the fine, moreover, falls on the boat's crew, in a kind of *ad valorem* rate, as

the case may be—not exceeding, at all events, a few pence per naked lady.

All the old bathing-women at Southport (to make use of an Hibernicism) are young men, that is to say, stout lusty fellows under middle age. Whether the service diminishes the chilling effects of the water; whether it makes young men old, or old men young, is a point, they say, not yet determined; at all events, such is the force of habit, that the young ladies one and all, without hesitation, submit to their guidance, such as they are. The guide, or male personage, or what not, takes his post in front of the door of the machine, in the usual manner, while the young lady within disencumbers herself of her apparel, putting on a dark blue bathing-dress, in which, by the way, I perceived no other difference from those commonly used, than that it was invariably fastened with strings between the ancles. In this costume the fair one, after a few minutes' delay, reappears on the upper step of the sanctuary, and there stands timidly hesitating—

“Albo sic humero nitens,
Ut pura nocturno renidet
Luna mari.”

“Her shoulder white,
As the moonbeam bright,
That illumines the glittering sea at night.”

Presenting both hands to the guide, supported by his grasp, and falling backwards on the wave, she then receives the embraces of old Neptune as young ladies usually do, with the accompaniments of squeaking, giggling, kicking, splashing, and wincing.

Besides the healthful recreation of bathing, the sea affords, from time to time, the diversion of sail-

ing. Boats at high water every morning depart for Lytham, besides others which ply regularly at the same period, for private hire. The boatmen, far from soliciting strangers to go on board with the usual importunity, were, on the contrary, so remiss, that I let several opportunities pass of becoming a passenger, imagining them to be engaged by a special party. On a subsequent occasion, being better acquainted with the style of things, I paid sixpence on the shore, and walked in with the rest. To get some half-dozen ladies on board was a part of the day's adventure; for as the tide was not yet sufficiently high, it was indispensable that they should be carried in men's arms for some distance towards the boat. The young gentlemen of their party very gallantly proffered their assistance, and two of them performed the service in a dexterous manner, both together supporting the fair burden by crossing hands, and enabling her to feel as if she sat in a sedan chair.

Women are tender, nervous creatures, and somehow or other, whenever they have to deal with that rude, rough animal man, universally put themselves into a twitter. Thus every one of these damsels began to be fussy the moment, or rather a few moments before, her turn to be carried arrived; and invariably one and all anticipated the gallants, by stepping forward most unnecessarily to meet them, and placing each her dainty little foot in the puddle. But this action was merely preliminary, and quite trifling compared with the furious fit of the fidgets which followed on being actually lifted. This ceremony was attended by an innumerable host of little difficulties. First they would not be helped at all,—

then they would be helped, but their clothes were in the way. Some found fault because the gentlemen placed their hands too high,—others squeaked because they were too low,—now they were sure they would fall forwards,—and then again there was nothing at all to prevent their falling backwards; so that finally, what with all their whims and fancies, they really, poor things, became seriously frightened, sometimes, as if wrought to a frenzy of ungovernable agitation, seizing the beau by his curly poll, at other times firmly clenching in their little fists an ear or a whisker. However, they were no sooner on board than their fears were all forgotten, and they became so joyous and happy that the bloom of youth and hilarity not only irradiated their own countenances, but also shed a reflected light all around.

It was on the evening of the above-related boating party, when as I was walking near the sea-shore, I observed three ladies perched on the summit of one of the highest of the sand-hills, and, as I approached nearer, I perceived they were all sitting down, having each a book in her hand which she seemed to be reading. As there appeared to be no chance of disturbing them, all being so intently occupied, I continued to stroll onwards, stopping now and then to look at the sea, and then approaching a little nearer by degrees, till I was enabled to discover, not only that they were young and pretty, and that instead of reading their books they were laughing and talking to one another;—but that they were the very identical ladies whom a few hours before I had silently accompanied in the boat. I therefore, having hitherto been moving in the periphery of a circle, commenced an approach upon its diameter, and then advancing,

I accosted the fair group, after having made a profound obeisance.

The above occurrence led partly in its turn to my partaking in an expedition, then on the *tapis*, namely, a donkey party and *fête champêtre* to be held in the country two miles distant, at a place called "The Isle of Wight." Why the spot should thus be denominated, I never could learn, the *locale* consisting merely of a small alehouse, "The Ash Tree," on the edge of the sand-hills, bearing a red flag flying on the roof; and adjoining which is a bowling-green.

It was about three o'clock of the appointed day, and not before the party were ready to proceed, that I began seriously to consider what I had undertaken; not that I had any fears on my own account, or other apprehension than for the back of the donkey, now appropriated to my service; having been of late years rather out of the habit of bestriding these animals. And it was really with unfeigned earnestness that I put the question to the boy, his owner, whether or not he thought him able to carry me. The master of *Duke*, for that was my donkey's name, had no scruples whatever on the part of his beast, neither had he a word to waste in reply; and as the ladies were all mounted and moving on, all he did was to tighten the girth. *Duke* received this favour conferred on him with a sour look, and upon its being repeated shook his ears, switched his tail, and drew himself up into a menacing attitude. He was a dun-coloured, bony patriarch, and though not overburdened with flesh, yet, as the nature of his duties demanded, a comely, able-bodied animal. On preparing to mount, I was somewhat discomfited by being provided with a lady's saddle, but

on these occasions everybody fares alike, and a stirrup is hitched on at the opposite side." This was not agreeable, but there was no help for it,—it was the custom. When I mounted, not only did *Duke's* back not bend, but I had reason to be perfectly astonished at the style in which I was carried, particularly as the road was paved, and the animal had not a shoe on his foot. None of the donkeys at Southport are shod, they say that the hoof becomes cracked if shod, and grows harder when bare. At all events, *Duke* stepped over the *pavé* without flinching, and at a rate, now and then, which I should have imagined quite impossible. As soon as the donkeys trotted, the young ladies began to giggle and titter, when the boys in the rear also opened their mouths and gave tongue, at the same time, by the liberal application of their sticks, we enjoyed a burst of a hundred yards at full gallop. On these occasions, such were the powers of *Duke*, that though I remained quite passive, I always found myself in the end, "first flight." The sagacious animal had a disagreeable fashion, whenever he felt his master's stick on his posteriors, of shuffling one side of his rump, if he could, under the tail of my coat, in order to avoid a beating, simultaneously yielding to the opposite side, with an oblique twist of his body; which movement felt precisely as if a strong man were twitching him half round, by a side pull at his tail. A similar manœuvre prevailed among all the donkeys, which caused them continually to cross, during the period of the gallop, in each other's wake, and so jostled and jumbled the riders together, as entirely to dissipate at once all manner of formality.

On dismounting at the sign of the Ash Tree, preparation having been previously made, an entertainment *à la fourchette* was displayed on the bowling-green, consisting of abundance of boiled eggs and delicate fried rashers of bacon. As to the tea, which soon was smoking on the board, its best panegyric rests upon its having been brought thither in a lady's reticule. At all events every one was thoroughly satisfied; and drank tea and ate of the eggs and bacon heartily, till all parties having rendered strict justice to the viands, the sand was rubbed off the hides and saddles of the donkeys, we remounted, and before seven o'clock the festivities had ceased, and every individual was left to his or her separate resources, for the remainder of the evening, in the town of Southport.

Since I have undertaken to relate a part of the gaieties with which I mingled during the few days of my sojourn at Southport, I must add to the foregoing another rural festival, in the way of races and sports, celebrated on the sands. The ceremonial was duly announced some days before by large placards, printed and distributed, to give it publicity; by these it was set forth, that races would take place between donkeys, and the spavined old horses used in the bathing-machines; that men would hop in sacks, trundle wheelbarrows blindfold, chase a pig with a soaped tail; and that boys would climb a greased pole for a gold-laced hat, and dip for pieces of drowned money in a bowl of treacle.

There is no physical or moral act of a man's life that so thoroughly assists his independence for the time being, proves good fellowship with all the world, and exhibits him in an undisguised state of

nature, as a sound horse-laugh; and for what possible reason the laws of fashion have forbidden that innocent recreation, I never could imagine,—a prohibition which actually causes the countryman to clap his hand before his mouth, in the presence of his superiors, as if it were absolute sin to give way to an honest impulse of nature.

Certainly it is very delightful to see people happy, especially when, not knowing exactly the reason why, they yield involuntarily to the united sympathies of body and mind, in the form aforesaid; in addition to which, in the present instance, however I might have been naturally predisposed towards this country tournament, there was one part of the exhibition, calculated, I am sure, to unbend muscles rigid as the bow of Ulysses—that of dipping for the pieces of money in treacle.

In the first place, the spot chosen for the occasion, on the broad sea-shore, was by nature most happily suited to the purpose, while a projecting ridge of sand-hills afforded a convenient position for the crowd, consisting of five or six hundred people, which had assembled to arrange themselves in clusters, and bask at ease among the little mountains. Besides, it was one of the finest of summer evenings.

A table or dresser having been placed on the sands, a huge wooden bowl containing at least a gallon of treacle, was put upon it, while the officiating personage carefully stirred round and round with a stick, ten silver shillings, within the luscious element. The competitors were then summoned by sound of horn to the lists; it being previously understood that the hands of each boy were to be tied behind him, and no means allowed, except the assist-

ance of his teeth, to recover the hidden treasure ; on such conditions, every prize so fished up, to be his by right of salvage.

The first candidate was a great lubberly boy of seventeen, whose diffidence, excited by the gaze of the multitude, caused him to display to better advantage the wide mouth and projecting teeth with which nature had furnished him. Although shouts resounded on all sides, and appeals were made from intimate friends to his acquaintanceship, the managers without delay proceeded to business, all preparations for which were effected in a few minutes. The hands of the hero were now bound, his throat was bared, he was placed kneeling on the table, the bowl of treacle before him, and he was just ready to duck for the prize, when a desperate effort was made by his grandmother to prevent the ceremony. At this juncture, she very opportunely, or rather inopportunely made her appearance, loudly called him by his name, screamed, pushed the people on her right and on her left, abused both him and them, and exerted all her feeble strength to make way through the crowd, and seize her recreant relative. But the poor old creature had very little chance, as might well be supposed, of attaining her object ; while she was pushed, and hustled, and impeded in all sorts of ways ; on the contrary, the boy was urged and instigated to be undutiful by public acclamation. Recognizing his grandmother, and her solicitude and inflexibility ought certainly to have won his heart, he grinned clownishly, and as if giving way to a sense of duty, for a moment refrained.—It was but for a moment. The sounds of “Go it, Dick,” “Down with your muzzle,” were too animat-

ing, and urged by the joint love of fame, money, and treacle, down went his head into the bowl.

The first struggle, no matter whether or not successful, was a very determined one; and it may well be asserted, that few scenes of the sort ever presented a better subject for a painter, than the one in question, at the moment when, after the first plunge, this rustic renegade drew his head out of the bowl, and recovered his kneeling position. His own countenance more like that of an ourang outang, than anything human, the disappointed rage of the grandmother, and the roars of laughter, proceeding from five or six hundred open mouths in unison, were so many sounds and objects which, when combined, presented, in their way, a picture of real life, seldom if ever to be surpassed.

The festivities had now lasted upwards of three hours, when even before the sun had set, the country people returned to their homes, and the waves broke again in solitude on the shore. During the whole performance, I never witnessed among a multitude of people, more good-humoured and orderly behaviour; indeed they submitted to be ridden at and driven out of the course by mounted horsemen with infinitely less remonstrance than is usual with many an ignorant vagabond, who reflects not on the process as tending to the general good. In fact, the congregation consisted chiefly of sensible industrious people,—of such as, thank God! there are thousands upon thousands in the country, apart from great towns, who support themselves by daily labour, and pass the chief part of their time in the bosoms of their families. In the neighbourhood of Southport, there is a rural manufacturing, as well as

agricultural population, of whom these were a part; domestic silk weavers, living separately in small cottages, and working at home at their looms.

And a more striking contrast cannot be conceived, than was presented on this occasion, to another scene I witnessed only a few days afterwards, at the Maghull races, where the crowd was composed of the rougher sort, in and about the great town of Liverpool, being, I sincerely hope, the outpourings of the worst class of inhabitants.

I can never forget the impression made upon me by the squalid ruffianly visage of a man, as he was sitting within, at the entrance of one of the tents or low receptacles of drunkenness. In one hand was his mug of liquor; with the other, he held by a string a starving white bull-dog. Several times I passed the spot during the two hours I was on the ground, and could not help pitying the destiny of the unfortunate creature, whose staring coat was sufficient indication of his hard treatment. I had left Southport on purpose to go to these races, and on my return home I saw once more this man and dog. The former lay on the ground in a state degrading to human nature, while shivering at his side in faithful attendance stood the dog. Notwithstanding the collapsed muscles of his master's hand had loosed their grasp, the faithful animal, a victim to ill-treatment and hunger, unflinchingly held his parole, evincing that disinterested attachment, that true nobility of nature, in search of which among the human race, many an honest heart may wither in disappointment.

CHAPTER IV.

C H E S T E R.

Antiquity *versus* Utility—Rows, Barns, and Cock-lofts—Ancient Wall—New Stone Bridge—Criminal Court and County Gaol—Canals—Voyage by Canal to Ellesmere Port—A humane Chicken-merchant—Salt-Mines at Northwich—Marston Pit Descent—Extensive Excavation—Regent Street—Pic-nic Parties—Subterranean Mice—A healthy old Horse—Want of velocity in ascent—Brine Springs.

THE very ancient city of Chester, where the scale of perfection ascends in proportion to antiquity, is certainly entitled to unbounded pre-eminence. It is the most strange-looking place in all England. Within its walls the most inconvenient and clumsy forms of architecture are held in preservation, in defiance of the light of modern knowledge and improvements in the arts. It would, at all events, puzzle a builder or architect to render, without the assistance of a model, an intelligible plan of such premises, among the by-ways and alleys, called *rows*, where a man must turn completely round, and look above him, in order to ascertain whether he is in the house or out of it; and where the inhabitants pass backwards and forwards among each other's dwellings, after the fashion of rabbits in a warren, or a race of primitive troglodytes.

During the short period I remained at Chester, I may fairly say I suffered from the inclemency of the weather. As regards the inns, the prejudice in favour of old houses has been turned to advantage,

and a stranger is consequently ushered into an apartment, which in other towns would be called a garret or a cock-loft; not but that in other places instances may be adduced where a sagacious landlord, finding, contiguous to his house, a barn, throws both under one roof, and contrives to gull a worthy public by raising before their eyes a stately elevation. This principle has been so frequently applied in the town of Chester, and alterations and repairs have followed, century after century, in such discordant succession, that it is difficult, in many parts of it, to determine the difference between being the inhabitant of what was originally a single house, or of two or three thus knocked into one.

In the meantime the town of Chester, though in possession of an outlet by the canal passing through from Ellesmere to the Mersey, may be fairly said to be fed, in great part, by the crumbs which fall from the town of Liverpool's table, the independent traffic bearing no proportion whatever to its importance as a point of thoroughfare between the metropolis, Ireland, Wales, and the latter great city.

The ancient wall which entirely surrounds the town, affording an excellent promenade along the whole circumference, is a noble and dignified model, worthy certainly of being handed down to posterity, and preserved in *secula seculorum*. In making the circuit of this walk, the new stone bridge struck me as being a beautiful structure, and I imagine of the largest span (240 feet) of any stone bridge in England; it is a single segment arch, a rainbow in symmetry, substantial in the highest degree, at the same time light and airy in appearance. The old bridge, about a quarter of a mile still higher up the

river, is on five arches, no two of which are alike; one large arch is elliptical, a small one a segment, and the other three are pointed, and of different sides.

Besides the new bridge, the new buildings of the courts of law and county gaol are erected in a style of improved taste, that renders a contrast with the old part of the town still more obvious.

The interior of the criminal court is really splendid, contrived so as to economise space in an extraordinary degree, and exhibit a highly-wrought specimen of architecture. The ground-plan is a semicircle; the roof a flattened dome, containing a skylight in the centre: the judge's seat is on the flat side of the semicircle, in the middle; the windows in the wall above him, the whole area of the court in front. Immediately before, and, as his seat is somewhat raised, below him, are the compartments for the juries and counsel, the witness box, and the dock for the prisoners; from the latter, an underground communication reaches to the gaol. Opposite the judge, on the curved part of the semicircle, the public are accommodated, under a colonnade supported by handsome stone pillars, from the base of which broad shallow steps descend into the body of the court. The walls and ceiling are richly ornamented.

The gaol is on the new construction, the governor's house in the centre, from which vistas radiate in every direction. The house is elevated above the cells, whose roofs spread beneath in the foreground, and in the distance a superb view appears of the surrounding country. On entering the turnkey's door, the healthful airiness of the

prospect, and the cleanliness and tidy arrangement within the building, render it difficult to reconcile to the mind the contrasting emblems of solitude and imprisonment.

Two canals, converging in a point, communicate with the river Dee, under the walls of Chester; the one, leading by Nantwich to Ellesmere, in Shropshire; and the other, by a straight cut of nine miles in length, extending to the Mersey. By this latter, a daily communication is held with Liverpool, whither passengers are conveyed in a steamer from Ellesmere port, a village on the banks of the Mersey, where warehouses, to a considerable extent, have lately been built.

I made one voyage by this canal, from Chester towards Liverpool, by the packet-boat, which started from the canal basin at eleven o'clock in the morning. Notwithstanding the bad navigation of the river Dee necessarily tends to increase the traffic on this canal, the indications of business, both in the office and on board the packet-boat, were fewer than might be imagined; that is to say, there were not more than twenty or thirty passengers, and the inland produce chiefly consisted of live fowls. The cheeses from Chester are usually trundled on board vessels of about two hundred tons, which latter are towed up and down the Dee by a steamer, called the *Dairymaid*; although the period when such a vessel as the former can make her way upwards must be extremely near high water. On walking by the side of the river, upon the *Dee Cop*, as it is called, the large embankment by which some thousands of acres of reclaimed land were formerly enclosed, one is inclined to wonder at the shallow channel of this

river,—thus constrained by artificial means within a narrow compass. At the same time considering the extreme flatness of the whole of this little peninsula, occupying its position between the Dee and the Mersey, the former river might be expected, when left to itself, to have laid the greater part of the land under water.

The incidents of this short voyage were but common-place, though it behoved each passenger to exercise some degree of watchfulness, to prevent his brains being beaten out by the arches of the numerous bridges across the canal. These are so low as not to allow a man to stand upright when passing underneath, and they are encountered at the rate of five or six in a mile. The boat was towed by three horses, of which a boy rode the hindmost, driving the other two before him without reins. The animals thus free of control, were, nevertheless, like men in the same predicament, not quite so independent as might be imagined, the towing-path being so straightened and narrow, that they were unable to turn round; and as the boy was what is called “sharp,” whenever the leaders were deaf to the crack of the whip, he jumped off and flogged them up to the mark.

I could not avoid paying some attention to the proceedings of a chicken merchant, who had under his charge upwards of twenty baskets of live fowls. These a common observer might have thought he was treating in an extraordinary manner; and persecuting the poor creatures to such a degree, that while the annoyance of their cackling extended to every corner of the vessel, those who sat to leeward were covered with dust and feathers. The entire

object of his superintendence seemed to be to inflict torment on these miserable animals, being continually on the alert, and as if possessed with a demoniac spirit, exulting in their imprisonment, as he poked them incessantly with a long stick, and grinned horribly at his victims through the wicker bars of their dungeons.

But it was easy to perceive, on a more careful survey of this man's countenance, that such surmises were unfounded; that he was merely labouring in his vocation, and so far from meditating evil to his prisoners, all his acts tended to their prosperity, at least in so far as related to preserving them all alive. Nay, so anxious was he lest any should die, that the perspiration trickled down his forehead, while the birds' feathers stuck upon his broad red gums, faster than he could possibly spit them out. As to his grinning at the birds, it proceeded merely from a nervous contortion of features, the effect of extreme earnestness, and was an involuntary effort by which the cheeks and upper lip were elevated by sheer force of the muscles of the *sinciput*.

The simple matter of fact was, that chickens, like human beings, act on selfish principles, and especially when a great number find themselves uncomfortable together, each individual tries to get on his neighbour's shoulders, not caring, so long as he himself obtains a little fresh air, whether or not the other endures suffocation. The chicken merchant had necessarily recourse to this revolutionary process; and though unable to alter the nature of the animals, he thus found means to give each, in his turn, an opportunity to shake his ears, and exercise retaliation.

We arrived at Ellesmere Port, which is, I think,

six or seven miles above Liverpool, and were met by the steamer, which conducted the passengers thither before two o'clock. The warehouses at the former place, before alluded to, are exceedingly well built, consisting of a triple row, with water cuts, passing through arches, among the buildings.

A coach starts daily waiting the tide passengers from Liverpool, from Runcorn to Northwich, at which latter town, a stranger, when arrived, may very reasonably, without being over fastidious, wish himself out of it. The streets are narrow, dark, and dirty; some of the inns rather below par. On the present occasion I had availed myself of the above conveyance, for the purpose of seeing the salt mines in the neighbourhood.

It has been my lot to receive so much kindness from strangers, to whom, without any introduction, I have made application to see their establishments, that I cannot, in fairness, draw an exception here, with regard to some difficulties which appeared when I set out on my present object in the morning; nor, in fact, were they of any farther consequence, than that they might have dispirited and deterred, at the onset, any mere lukewarm adventurer. It is but reasonable to find such trifling impediments thrown in the way of the public at large, by a proprietor subject, day after day, to applications from all descriptions of people, attracted by a great natural curiosity. One may rather wonder at permission being granted to upwards of a thousand people every year, in spite of interruption and detriment to business, to visit these mines.

Wishing to see the Marston Pit, the same formerly known as Burns's Pit, before it came into the

hands of the present proprietor, I was informed, on inquiring, that I had nothing to do but go thither, and obtain permission from any of the principal people of the establishment then on the spot. However, having walked to the pit, a mile and a half from the town, on the Liverpool road, I found that nothing short of permission from the proprietor himself would answer the purpose; I then returned to the town, found out and made personal application to the gentleman in question, by whom it was immediately granted.

Having provided myself with a paper of powder, prepared by a chemist in the town, to answer the purpose of blue light, I presented myself again at the Marston Pit, which consists of two levels, the lower of which is one hundred and twelve yards below the surface of the ground, and the other just half-way down the shaft. Although there were no men at work on this day on the lower level, my conductor recommended me, by all means, to visit this, partly for that reason, but chiefly on account of its being more ancient, and exhibiting a far more extensive excavation. It had, as I understood, been worked for a period of sixty years.

As soon as the engineer had "put a little steam on," we both stepped into a round tub, and standing upright, holding by the chains, were let down very easily. An extraordinary effect was produced by the scene around me, which surpassed anything I had anticipated; creating those sensations I remember to have felt when first I read of the pyramids and catacombs of Egypt. A magnificent chamber, apparently of unlimited extent, is supported by a flat roof presenting an area so great

that one cannot help being astonished at its not having long since given way. Nevertheless no want of security is apparent, and it remains sound and durable as if formed of adamant. Here and there it is fortified by pillars, in size like a clamp of bricks in a brick-field, the latter presenting to the view an array of objects sufficient to break the vacancy of uniform space. According to my idea of the extent, it is an area equal to the site of Grosvenor Square, or thereabouts. In the mean time the glistening particles of crystal salt on the walls, and the extreme regularity of the concentric curved lines, traced by the tools of the workmen, are very remarkable. Occasionally the mark of the jumper-chisel is observable, where recourse has been had to blasting the solid rock. I made a few blows against the side of the mine, with one of the heavy-pointed pickaxes in ordinary use, and found it hard as freestone. Under foot the whole surface is a mass of rock-salt, covered with a thick layer of the material, crushed and crumbled to a state resembling the powdered ice on a pond cut up by skaters.

Experiments have been made by boring to a depth of seventeen yards, but they have neither perforated the stratum of rock-salt, nor have they hitherto ascertained its thickness. The height of this excavation is about fifteen feet, within which space the salt is estimated as being of the best quality. Above it is somewhat inferior. I was informed that thirty-five thousand tons were annually dug out of the different levels, and that the area of all these together amounted to forty-eight statute acres. A considerable quantity is exported to Prussia.

At one part is a vista of two hundred yards in length, dignified with the name of "Regent Street." Here occasionally pic-nic parties resort; and on a large table of coarse deal boards, were the evidences of deeds of wassail, performed at a feast of this description, celebrated a few months before. An empty jug and sprig or two of evergreen lay forlorn and neglected, together with natural tokens, indisputable and abundant, of mice that had joined in the revelry. These little animals invariably establish their residence under ground, wherever men lead the way. At the coal-pits at Whitehaven, for instance, they are plentiful at a depth of one hundred and forty fathoms, being imported originally, probably in bundles of horse provender. Were it possible, within this mine, to provide against the inconvenience of smoke, there not being any efficacious outlet for its egress, I cannot conceive a place better calculated, with proper appendages and decorations, to give effect to a *fête* on a magnificent scale. As it is, and as regards light and smoke, people must be content with a choice, either to have too much of the one, or too little of the other.

Every one who descends this pit ought to bring a good Bengal light, instead of the preparation vended by the learned chemist of Northwich. This is a yellow powder, a quantity of which being placed on the ground, and ignited by a piece of lighted paper, engenders for a few seconds a tantalizing glare, which sinks exhausted before it is possible to take an adequate survey of the objects around. For ordinary purposes, we had recourse to common tallow candles.

Having wandered a long time, through vast space,

but almost in darkness, we came again to the foot of the shaft. Previous to ascending, my guide went a little out of the way, in order to carry a pail of water to an old horse, who, as the workmen were absent for the whole day, was standing by himself in perfect solitude, and till we came, without any light at all. Alone and in darkness, he must, poor fellow, from necessity, live for many hours in the year, and pass thus neglected a very considerable portion of his time. He loudly expressed his gratitude for the water, and as I took an opportunity of examining his condition while he was drinking, I found it particularly good; unlike the flaccid, though fine-coated state of horses in coal-pits. His firm crest and perfect state of health, I attribute specially to the salubrious effects of the salt. His stall was comfortable and dry, as was the whole space below contained in this pit; nor did I observe any appearance whatever of water or moisture during the whole time I was below.

As we were drawn up, I failed to experience the joyous bounding sensation I felt at being whisked upwards nearly three times the distance from the bottom of a Whitchaven coal-pit. Whether it be that here they have a delicate way of treating sight-seeing people, or that the steam of the engine was hardly up, I do not know; at all events we rose exceedingly slow, so much so, that it felt to me as if the powers of the engine were dying away, and that we were about to return, as the sailors say, "by the run." When within a few yards of the summit, the wheel made a few gentle oscillations, letting us down a little way, and then drawing us up again; so that I was truly glad the moment I could catch a firm grip

above, and step out of the bucket. A certain degree of velocity in ascending is indispensable to impress the mind with a confidence in the power by which one is raised; and though I have heard of people who, when drawn up quickly, have been so seriously affected by the motion, as to be obliged to be rolled on the grass at the top before they could recover their sensation, I, for my part, think that the quicker one is pulled up, and out of such deep holes as these, the better.

The salt, after being prepared by the solution of the rock and evaporation, is formed by wooden moulds, with holes at the bottom, to allow the remaining water to pass through, into cubical blocks, and in this state shipped, either by the river Weaver and canal to Western Point, and thence into the Mersey, or by the canal southward.

A considerable quantity is prepared from the brine springs, some of which are so strongly saturated, as to hold in solution the greatest possible quantity of salt. To the water of others less powerfully impregnated, rock-salt is added while boiling in the pans. From all these springs the water, or brine, is raised by a shaft sunk, and a pump worked by an ordinary steam-engine.

CHAPTER V.

M A N C H E S T E R.

Proclamation of Banns—Country Couples—An exclusive Wedding Party—An enamoured Bridegroom—Sheepish Lovers—A persuasive Parish Clerk—Hydraulic Press—Packing Cotton Yarn—Museum of Natural History—Waxen Models of Tropical Fruits—Stuffed Birds—Egyptian Mummy—An Old Maid in a Glass Case—A moral Reflection—The Old Horse Billy, aged sixty-two years.

I ATTENDED the Old Church at Manchester one Monday morning in order to witness the solemnization of several marriages I had reason to suppose were then and there to take place. I had heard on the preceding Sunday the banns proclaimed as follows:—For the first time of asking, sixty-five; for the second time, seventy-two; for the third time, sixty.—Total, one hundred and ninety-seven.

Having been advised to be on the spot at eight in the morning, I repaired thither at that hour; operations, however, did not commence before ten; the latter is the usual time of proceeding to business, although in cases of persons married by license, eight o'clock is the hour.

A full quarter of an hour before the striking of the clock, two beadles in parish liveries had taken ground opposite the church-door, and a sufficient number of persons, chiefly young women, had assembled, whose curious and anxious looks testified that something extraordinary was about to take place. By this time, also, suspicious-looking persons in pairs were beginning to arrive on foot, whose coun-

tenances were accordingly scrutinized without mercy by the crowd of loiterers, and as the church-door was not open, every matrimonial candidate who waited to be let in was subjected to the same ordeal. The couples were all poor people, and as to the brides and bridegrooms, as few were dressed in special *costume*, and all were very generally attended by friends and relatives, it was not easy to say which was which. One party arrived at the church-door evidently wishing to belong (as everything in this world goes by comparison) to the higher classes, and though dragged by one solitary horse, made a strenuous effort to outshine. Their carriage, a narrow *vis-à-vis* fly, intended for two persons, now contained four, besides a fat man with bushy whiskers, probably the bride's brother, who occupied the box with the coachman. Within, packed as close as they could possibly sit, on one side were the two bride's-maids; opposite to these the bride and bridegroom; the latter a spruce sandy-haired young man, looking flushed and eager. One of his arms encircled the waist of the young lady, on whose blooming countenance he bestowed glances of the very tenderest description;—in fact, his looks were so peculiarly expressive, that, attitude and all considered, I hardly knew whether to compare him, in my mind, to the statue of Cupid regarding his Psyche, or a Scotch terrier watching at a rat-hole. * * The coachman and his companion wore white favours; the former meditating effect, inflicted some smart strokes of the whip on the horse, intending to bring him on his haunches with a jerk; but the poor jaded animal, evidently over-driven, had sense enough to anticipate the object proposed, and stopped dead short a few

paces before, by which both men on the box were very nearly pitched over his head. The people sat in the fly till the church-door was opened, and then the ladies got out and tripped across the pavement into the church. They wore short petticoats and white satin bonnets scooped out in the hind part, with sugar-loaf crowns, and their back hair underneath combed upwards.

When all was ready, and the church-doors opened, the clergyman and clerk betook themselves to the vestry, and the people who were about to be married and their friends seated themselves in the body of the church opposite the communion-table, on benches placed there for the purpose. Not less than fifty people were assembled, among whom I took my seat quietly without being noticed. The party who had arrived upon wheels most exclusively paraded, in the mean time, up and down, as if unwilling to identify themselves with the humbler candidates for matrimony, in another part of the church. The latter at first took their seats in solemn formality, each one at the same time rather inquisitively surveying his neighbour; but as the clergyman and clerk were some time in preparation, the men first broke silence by whispering one to another, which caused the women to titter, till by degrees they all threw off their reserve, and made audible remarks on the new-comers. There was little *mauvaise honte* among the women, but of the men, poor fellows! some were seriously abashed; while among the hymeneal throng there seemed to prevail a sentiment that obtains pretty generally among their betters, namely, the inclination to put shy people out of conceit with themselves. Thus at the advance of a

sheepish-looking bridegroom, he was immediately assailed on all sides with "Come in, man; what art afraid of? nobody'l hurt thee." And then a general laugh went round in a repressed tone, but quite sufficient to confound and subdue the new comer.

At last a sudden buzz broke out—"The clergyman's coming!" and all then was perfectly silent. About twelve couples were there to be married; the rest were friends and attendants. The clerk, who was an adept in his business, and performed the duties of his office in a mode admirably calculated to set the people at their ease, and direct the proceedings, now called upon the former to arrange themselves altogether round the altar. In appointing them to their proper places, he addressed each in an intonation of voice particularly soft and soothing, and which carried with it the more of encouragement as he made use of no appellative but the Christian name of the person spoken to. Thus he proceeded: "Daniel and Phœbe; this way, Daniel; take off your gloves, Daniel.—William and Anne; no, Anne; here, Anne; t'other side, William.—John and Mary; here, John; oh, John; gently. John." And then addressing them all together: "Now all of you give your hats to some person to hold." Although the marriage-service was generally addressed to the whole party, the clergyman was scrupulously exact in obtaining the accurate responses from each individual. No difference was shown towards the exclusive party, other than by being placed on the extreme left.

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After the above interesting ceremonial, I went to the warehouse of a large establishment in the town,

to see the operation of a powerful hydraulic press, employed in compressing bales of cotton yarn, previous to exportation to Russia. However well known and general in its use this wonderful machine may be, whence with the assistance of a few gallons of water so stupendous a power is obtained, there are few objects better worth the trouble of inspection.

When I entered the warehouse there were two presses in an apartment on the ground-floor, the larger of which was now about to be put in operation. As the workmen had just returned from dinner, no other preparations were at the time visible, except the two presses, fixtures in the apartment; the iron plates of these, on which the bales were raised and pressed against the upper part of the machine, being about five feet six inches long by three feet six broad. As soon as they were ready to begin, a signal having been made to those in an apartment above, a shower of brown paper parcels, each weighing exactly ten pounds, and containing thirty skeins of yarn, suddenly rolled thumping and thundering down, along a funnel nearly perpendicular, with a tremendous clatter, upon the floor. As each bale consists of a hundred parcels, it consequently weighs one thousand pounds.

The first operation, that of placing the parcels in order, so as to form the figure of the bale, was performed with wonderful adroitness, and, at the same time, apparently in the most careless manner; the parcels being tossed about from one man to the other in forming each layer, as if their position were a matter of chance altogether; yet they were handled so quickly, that the whole hundred were piled in a very few seconds in a cubic form, a thin shaking of

straw and a few loose sticks being introduced between each layer. The performance seemed the more void of regular design, as the layers contained unequal numbers of parcels, some of sixteen, and others seventeen, though the interstices were arranged so as to give every layer a similar periphery. This inequality in the layers I did not expect to see as a practical example of packing, exercised by professed artists; to the force of the hydraulic press, it was committed, by squeezing all together, to reconcile such minor differences.

The bale being ready for compression, two or three pieces of new blue iron hoop plate, or binders, were laid transversely underneath on the plate of the press; upon these was placed a piece of ordinary matting, and upon this the bale, which was at present without its canvas covering, the parcels being loosely held together by cords. The canvas covering aforesaid was now laid on, and on the top of all three or four strong wooden bars, placed transversely, in order to preserve space to allow the binders to be brought round from the bottom, after the bale was compressed, so that the former might be riveted before the other was liberated. A couple of men now repaired to the pump, which they worked with the greatest facility, and the bale slowly began to ascend; not only was the resistance occasioned by raising the weight of one thousand pounds inconsiderable, but also the greater effort applied in the first moments of pressure, when further ascent was obstructed by the top part of the machine, nor was there any visible increase in the exertion of the men till after its size was reduced by at least one-third. Then indeed the handles of the pump seemed

to move stiffly, though even then there was no obstruction or decrease in the speed of the ascent! The men continued to pump till it became one-third of its original size, and by that time, the action of the machine seemed somewhat slower, and theirs a little more laborious, while a peculiar creaking sound bespoke the gigantic power in operation. All this time labourers standing by with long-handled heavy wooden mallets, whenever a parcel showed the least disposition to bulge forth out of its place, hit it a clinking blow with the mallet, and drove it back again, and thus they went on, in co-operation, pumping and thumping.

It was curious to remark, how little the men, who are employed every day in managing this wonderful engine, seem aware of its power, that is to say, how little trouble they give themselves to define its extent. In answer to several questions I proposed to them, I could obtain no satisfactory reply.

As soon as the bale was pressed to the proper size, the next process was to invest it with its hempen covering, and as the canvas previously laid over the top was cut to its proper shape and size, this was very soon performed,—namely, in about a couple of minutes,—by a couple of men, with packing-needles, one sewing it on one side and one on the other.

All that now remained to be done was to rivet the binders, which were brought from the bottom, between the wooden bars before-mentioned, having been cut previously of the proper length, so as to encompass the bale and lap one end over the other. But to accomplish this matter, and, in fact, to make both ends of each binder meet, some force was ne-

ecessary. The upper end of the binder was seized by a pair of pincers, formed with handles like those of scissors, into which handles, a piece of rope being introduced and hauled upon, the pincers join, and the tighter the rope is strained, the faster is their grip. One end of the rope being thus attached to the pincers, the other end was made fast to a roller fixed at the bottom of the bale, which roller was turned by levers, after the manner of the capstan of a ship, and by this purchase the upper end of the binder was made to overlap the lower.

The operation of riveting the ends thus brought together was easily performed by a punch acting like a pair of nut-crackers, and a few blows of a hammer completed the work; the cock of the pump was then turned, the water flowed off, and the bale descended ready for exportation.

of the pump * * * * *

The museum belonging to the Manchester Natural History Society, even at the time I saw it, in 1834, was one of the best establishments of that nature in England; they have since taken possession of a large building then under erection for their use, and have made considerable additions to their specimens.

Among these there is a most interesting assortment of waxen models of fruits and esculent plants of the tropical climates, beautifully executed, and coloured according to nature; thus exhibiting to the view the productions of foreign lands in a state of perfection and beauty, and presenting as correct a picture of their horticulture, as if the plants themselves were present and ranged on either side of a hot-house.

The above specimens were the chief objects of attraction in one of the apartments on the ground-floor, in which were also numerous Roman antiquities in *Terra Cotta*, and in the other apartment a collection of mineralogical specimens, such as is seldom to be met with.

The first floor, consisting of three apartments, one large and two small rooms, contained the most splendid collection of stuffed birds I ever beheld: plumage more brilliant and attitudes more spirited cannot possibly be imagined. The artist who prepared them was, as I understood, a weaver by trade, entirely self-taught, and engaged five days in a week at a constant salary. Among those most worthy of notice, were the *Trogon Pavoninus*, from *Central America*, a bird of highly-burnished green plumage, with two long feathers in the tail; also a white hawk from New South Wales. Notwithstanding the abundance of the collection, the exhibitor informed me that many skins, highly curious, could not be exhibited for want of room; of these, forty-two had recently arrived from Bombay, out of which number three specimens only were in the possession of the society before.

Two contrasted specimens of the ancient and modern art of embalming were placed in singular juxtaposition with each other; the one the mummy of a female, supposed to have been young, from Thebes, and prepared nobody knows by whom; the other the corpse of an old maiden lady of Manchester, preserved by a late Dr. White.

The Egyptian damsel lay entirely divested of her cerements; the colours of her portrait within the centre wooden case perfectly vivid, and bundles

of blue bugles and coarse linen cloth in good preservation.

The old maid stood upright in a glass case, not in fashionable costume, but enveloped from head to foot, in a dress of blue striped ticking, leaving no part of her person but her face visible, and fitting her so tightly, that it is probable the doctor first paid her over from top to toe with hot glue, and then drew on the garment.

In neither of these specimens, the one of youth, the other of age, are to be seen the slightest trace or lineaments of countenance; and neither, though good of their sort, are equal to tattooed heads of New Zealand chiefs, now so commonly met with. But they afford jointly, at least, a curious instance and proof with regard to the question of age, as to which ladies are said to be particular, that notwithstanding the services of the toilet may be protracted beyond the grave, a difference even of three thousand years is not always perceptible.

Another preparation was, to me, particularly interesting, as relating to the extraordinary longevity of a horse. Old Billy, for so was he named, worked all his life on the towing-path of one of the canals adjoining the city, and died on the 27th of November, 1822, at the wonderful age, testified beyond all manner of doubt, of sixty-two years. Before his demise he attained the honour of forming, decorated with ribands, part of a procession assembled at Manchester to celebrate the coronation of his Majesty King George the Fourth.

Judging by appearances, Old Billy enjoyed perfect health to the last hour of his life. The head is

well shaped, bearing the Norman character; the ears cropped, and the hair of the mane and foretop particularly fine, but bushy: besides the above preparation of the skin of the head stuffed, Old Billy's skull also occupies a place in the museum.

CHAPTER VI.

WARRINGTON—ST. HELEN'S.

Warrington Junction—Pin Manufactory—St. Helen's Railroad—Plate Glass Manufactory—Branch Railroad from St. Helen's to Runcorn; a Journey thereby—Way to drive a Carriage down a Hill.

THE Warrington Junction is a point in the Liverpool and Manchester Railway, from which a branch road, six miles in length, departs to Warrington. Thither one, two, or three, or as many carriages as necessary, are despatched every day at stated times from the latter place, to meet the trains going both ways on the Manchester line. Little delay takes place in the mutual exchanges of passengers by the Warrington engine, they being forwarded in the same carriages, without the trouble of getting out, east or west as it suits them, the engine receiving in tow others to take back, under a similar arrangement, to Warrington.

Having gone from Manchester to Warrington by the above mode of conveyance, I visited a large pin manufactory in the town. I had never an opportunity either before or since of witnessing this useful art and interesting process, but all the information I was enabled to glean during a hasty walk from chamber to chamber of the premises may be gathered from the following description.

The brass-wire is received at the manufactory in hanks or rolls from Staffordshire, and these are, in

the first place, drawn to a fine thread in the usual manner.

As the wire still retains a curved form, it is straightened by straining it between alternate rows of pegs inserted on a table; and when perfectly straight, it is cut into lengths of five or six inches; which lengths, however, are determinate, being intended to form the shafts of a certain number of pins. A handful of these is delivered to a workman, who performs the office of pointing with wonderful quickness, sitting behind two wheels, like those of a scissor-grinder, excepting that, instead of stone, they are of steel, one being of a surface finer than the other. He no sooner receives the little bundle of wires, than in an instant they are assorted in his hand like a pack of cards in an even row; one touch on each wheel perfects the points of one end; and then, by a turn of the hand, the points of the other end are made in like manner; and the bundle handed to another operator, who, by the eye alone, snips off a pin's length from each end. The cutting is performed by a large pair of scissors fixed to the table, the blade of which is as big as a shoulder of mutton. The wires are now re-pointed as before; and so on re-cut by one man and re-pointed by the other, till the whole are subdivided into pins' shafts, and nothing is lost.

To make the heads, two little boys are employed, one of whom especially exercises in his vocation a degree of cunning workmanship hardly to be expected from an artist so young, and at all events exhibiting an interesting display of perfection in the faculties of sight and touch. From a piece of elastic wire, such as forms the covering of a fiddle-

string, with an ordinary pair of scissors, he snips off, as quick as he can open and shut the scissors, just two threads of the spiral or *helix*, and no more. Were he to cut one thread or three, the head of the pin, which it is intended to form, being too large or too small, would be consequently rejected as waste metal and re-cast into wire. The elastic wire is prepared by another little boy in the same apartment, who rolls it round a piece of straight brass-wire of the proper dimensions, and about three yards long, by the assistance of a large spinning-wheel. As the wheel hums round, the covering creeps along from one end to the other at the rate of two or three inches a second; and when the straight piece of wire is thus entirely covered, it being, I imagine, made purposely a little smaller at one end than the other, it is drawn out without any difficulty.

The pins are headed by little girls with astonishing rapidity. Every pin is taken up between the thumb and finger, and, the head being then strung upon the shaft, it is placed in a small machine, which rivets it at one blow, and disgorges it at another. This machine is of rather complicated construction, but in general appearance like a small turning lathe; that is to say, it is fixed on a table, and worked in a similar way. At a turn of the wheel two small iron slabs separate with a horizontal motion, and at another close again. The little girl sits behind the machine with a basin of pins' heads in her lap, which in that state resemble poppy seeds, and having threaded two shafts, gives the wheel a turn with her foot, when the aforesaid slabs diverge one from another; she then places the two pins in two small horizontal holes made to receive them, and turning the wheel again, the slabs close violently, and rivet

the two heads in a moment. Every time the slabs open, the two new-made pins tumble out, and fall into a basin below.

In order to whiten the pins, they are boiled in a caldron, in a composition of which I did not learn the ingredients, but of which the principal appeared to be tin broken into pieces the size of mustard seed.

After the pins are finished, it only remains to fix them upon paper in the usual way, and this is done in a separate apartment, where one woman doubles the paper, and at the same time superintends a number of girls who stick them in. The paper is doubled entirely by hand and by the eye, in parallel ridges, and then delivered to the girls, who sit at tables, each with a machine like a vice before her. The creased ridges or tucks of the paper being brought two and two, are introduced below into the machine which closes and leaves a narrow horizontal strip above. Into this the pins are inserted, and in order to guide them in a straight line, parallel transverse grooves are cut on the surface of the instrument, at equal distances, so that each pin cannot fail to enter exactly into its proper place, it not being possible for it, when pushed forward, to move in any other direction.

Being on my way to St. Helen's, I was discharged, together with seven or eight other passengers, from within one of the carriages of the train from Liverpool to Manchester, at the foot of the Sutton inclined plane, on the railroad, and as the train from Manchester had not yet made its appearance, we waited here about half an hour. So soon as both squads of passengers had arrived from either end of the

line, we all got into one large covered vehicle, and were dragged at a foot pace, by a single horse, along the branch railroad, about a mile in length, that leads to the town. Nothing can afford a more striking contrast, in point of celerity and convenience to passengers, than these newly-formed branch railroads with those on a well-established line; however, this difference cannot fairly be considered a disparagement to the undertaking, being inseparable from an early stage of proceedings. Still it must be confessed, that the present mode of conveyance was as disagreeable and as slow as can well be imagined.

Large quantities of coal are sent from St. Helen's to the banks of the Mersey by the Sankey Canal, from whose basin, which is of considerable extent, the vessels enter the river at Runcorn. By the new railroad also numerous coal waggons are continually despatched in a parallel direction, the proprietors having extensive premises and a commodious dock-basin adjoining the other, for the convenience of the Liverpool small craft attending to receive cargoes. A great deal of this coal goes to Ireland.

Among numerous works conducted at St. Helen's, is an establishment lately set on foot for the smelting of copper. There are manufactories also of crown and of plate glass.

The chief object of my visit to this place was to see the latter, and for this gratification I am indebted to the proprietor, who kindly admitted me on my application. This extensive establishment consists of iron founderies, as well as the manufactory aforesaid, and contains within its walls an area of twenty-two acres of land.

The material being fused—the chief ingredient to aid the liquefaction of the sand being, as I understood, carbonate of soda—it flows by eight conduits from the furnace, on a cast-iron slab fifteen feet long, by eight feet broad, and eight inches deep,—the weight near seventeen tons. It is then, while soft, rolled by a cast-iron hollow roller, of about a foot diameter, and weighing eight hundred weight. The glass, after the roller has passed over it, presents an undulated surface, like that of ice frozen under a rippling breeze, or of the small ridges of sand on the sea-shore; or it may be compared to the surface of the oilcake compressed from flax-seed, for the use of cattle. In this state it is full three quarters of an inch thick, being afterwards reduced to its proper dimensions solely by attrition.

The cast-iron slab aforesaid being close to the furnace, the newly-made plate is gently removed within the mouth of the latter, where it remains under a temperature gradually diminishing for the entire space of seven days, before it is cool.

The plate being cool, the grinding process is commenced. It is removed into an apartment wherein eighteen wooden frames are propelled with a horizontal circular motion, by means of cranks connected with a main shaft that extends the whole length of the apartment and is worked by a steam-engine. The motion thus given to the frames is precisely such as if one were to place the hand flat on a table and move it round in a circle. In order to check the centrifugal motion given by the cranks, each of the frames is retained in its orbit by two chains which hook on at opposite sides, and are fixed to the ceiling. A plate of glass is fixed at the bottom

of each moveable frame, which rubs against another plate of glass firmly cemented by plaster of Paris in a stationary frame beneath. Thus, as the frame revolves horizontally, glass rubs against glass, the polishing material, which is in the first instance plain sand, being applied, wetted with water, between both. A proper degree of pressure is preserved by placing weights, *ad libitum*, upon the upper frame, within small partitions made on purpose to receive them. During this part of the process, the glass undergoes attrition for the space of two days, first, by the application of sand as a polishing material, and afterwards emery, the latter increasing regularly in degrees of fineness.

The glass being at this period reduced in thickness to very nearly its proper dimensions, but quite opaque, is handed over to women, who occupy another apartment, and who rub it by hand with small wooden frames, whose action, though lighter, is nearly the same as that previously imparted by machinery. By this process the plate is perfectly cleaned and freed from the particles of emery, and rendered fit to receive the next stage of polish, from the red oxide of iron.

The last operation is performed in a third apartment. The plate is now fixed, face uppermost, in a frame, to which a horizontal rectilinear motion, backwards and forwards, is imparted by machinery. A similar motion, at right angles to the former, is given to the rubber, which is covered at the bottom by a thick layer of felt, the latter being kept continually wet and nourished with the red oxide of iron. By this last process the plate receives its final polish and transparency.

It behoves not those people to whom time is of value, to travel by the branch railroad from St. Helen's to Runcorn; for, as previously hinted, it by no means follows that because arrangements have been made to convey trains of coal-waggons from one end of a line to the other, accidental passengers are to be equally favoured in their transit. In fact, the transport of passengers on these branch railroads seems almost altogether a matter of accommodation, which people are willing to receive, under any restrictions, rather than be left behind; at the same time, it is worth considering why any undertaking, be it what it may, if not intended to be done well, is attempted to be done at all.

I started from St. Helen's on my way to Runcorn by the railroad, (fortunately one fine afternoon, as the time expended in travelling the eight miles was very nearly three hours,) in the same vehicle, drawn by one horse, in which I had arrived. Having crossed the Liverpool and Manchester line, we had not proceeded more than a mile and a half, when the driver suddenly pulled up and demanded sixpence, the expense of my conveyance for the part of the distance already performed; I therefore ventured to ask by what means I was likely to accomplish the remainder. The man replied that I must wait on the road, where we then were, while he went back to the Liverpool and Manchester line to wait for the trains and bring more passengers; adding, in a consolatory tone, he would not be absent more than an hour. Here I actually waited an hour, plus one quarter, at the bottom of an inclined plane, to the summit of which the carriages are drawn by a stationary engine and an endless rope,

when they descend the declivity, on the other side, by their own gravity. As the laden carriages are thus raised, an iron *skid* is attached to the last, to prevent accident, in case the rope should chance to break; and a low small carriage follows the laden ones, in which a man sits, whose sole business is to attend this *skid*. Arrived at the top of the inclined plane, the man removes the *skid* into his own vehicle, and taking charge, at the same time, of a set of empty carriages, down they go altogether back again *à la montagues Russes*. Having nothing to do, I amused myself, while waiting for my conveyance, by accompanying this man a few trips up and down, though a few experiments were quite sufficient, till I perceived the carriage, on its return from its expedition, crawling slowly along towards the bottom of the inclined plane, where it was taken in charge by the dragsman, and being detached from the horse, was fixed behind a train of laden coal waggons, and drawn to the top. Not a single passenger had arrived from the Liverpool and Manchester trains, so that the delay (of some importance at least, as far as regarded numerous coal-waggons some time since ready to proceed to Runcorn) was to no purpose.

A heavy-looking old man now took charge, and commenced business by demanding nine-pence, the remainder of my fare to Runcorn. Under this person's guardianship, it was necessary to descend the inclined plane, a performance not altogether agreeable, as some consequence is to be attached to the management of the brake, the only countervailing power on the occasion, to the impulse of gravity;

and somehow or other I had an apprehension that this old man would run us down too fast. As it happened in the result, the fault was on the opposite side, for he went down too slow. The engine-man, moreover, instead of taking the vehicle, as is usual, in tow to follow in the rear, proposed instead to place it in front, and so, as it were, dragging after him a heavy train of laden coal-waggons, push it, or rather kick it along; and matters being thus disposed, we began to descend the declivity.

The carriage was a sort of hermaphrodite vehicle, one part open and the other close. I took my station in the open part, behind, and with my back to the direction of our motion, had a full view of everything that followed on the line, particularly of our engine and its train of coal-waggons, halting at the top, in order to allow the old gentleman in charge sufficient time to get down; in short, my face was in the same direction as that of an outside passenger behind with his back to the stage-coach. The engine-man miscalculating distance, and under-rating the celerity of his own movement, now came trundling along down the hill after us at a winning pace. I had scarcely made up my mind that collision was inevitable, when we got a tremendous thump from the huge body, weighing at least forty tons, that followed in our wake, and impinged with such force that, no matter what became of the old man, I, not having rightly judged the direction of the impulse, though not in the least hurt, was thrown violently out of my seat.

We were now taken in tow, for a short distance,

by a second engine, after which it became necessary to walk a mile and a-half from the railway station to the Mersey, and, finally, with considerable delay, we crossed that river at the established ferry, previously to our arrival at the town of Runcorn.

CHAPTER VII.

B U X T O N.

A Stage-coach Accident—Ready answer to obliging inquiries—The great Hotel—Elevated Level—A rural Walk—Hobblers—A spavined old Gentleman—A Visit to Poole's Cavern—Two Damsels of Darkness—Stalactites; contrasted with those in Hookey-Hole—Bats—Lime-burners' Dwellings—Horse and Buggy—"A short Stepper"—Shivering Rock—Castleton—A Dealer in Virtù—The Devil's Cavern—Hall of Pluto—River Styx—Dreary Tunnel—An Illumination—The Speedwell Mine—Thundering Cascade—Bottomless Pit—Subterranean Voyage—Parturition of the Mountain—A sober Proprietor.

A COACH leaves Manchester daily during the season for Buxton. On the occasion of availing myself of this conveyance, I had reason to rejoice at having attached my fortunes on that day to the *down*, instead of the *up*, vehicle.

We departed at three o'clock in the afternoon, and had proceeded on our way till we arrived in sight of our partner coach, advancing in the opposite direction, when we perceived that the horses were running away as furiously as their clumsy action would allow, for they were apparently (even seen under present advantages) a pair of floundering heavy brutes. Our driver immediately gave them a wide berth, and inasmuch as they preferred the wrong side of the road, he very prudently took up a station on the other. It was well he did so; for on came the coach, rolling and swinging in the track we left, while a stout coachman sat on the box, calling *who-ho* in vain, and pulling with all his might against a

pair of determined hard-mouthed 'uns, both obstinately bearing towards the off side of the road.

The vehicle had no sooner passed us, (much closer, by the way, than was agreeable,) than it was evident that a catastrophe was inevitable, as the cattle continued to incline more and more towards the hedge; in the mean time we remained stationary, anxiously waiting the result. Nor were we long in suspense, for some obstacle caused the vehicle suddenly to stop; either a horse fell or ran foul of the bank, or a wheel grazed, or some such casualty happened, we could not see what it was, otherwise than by the effect produced; the coach gave a violent lurch, being all but over, then righted, at the same time flinging out of his seat an unlucky man, who sat on the top. I saw him with his heels up, and his head downwards, in figure like the letter X; and in that position he fell, with the joint force of gravity and progressive motion.

Our passengers were eager to render assistance, as well from curiosity as commiseration, being really desirous to know, at least, whether the unfortunate man were alive or dead; but the driver whipped on his horses in spite of entreaty and remonstrance; neither to this moment do I know how the poor fellow, whom I saw on his short journey, head foremost, to the hard ground, fared when he got there.

The object of the coachman, by his forward movement, no doubt was to keep his passengers in ignorance of the extent of the damage; and thus it is that, the necessity is not unfrequently obviated of providing answers to obliging inquiries; and

coach accidents are prevented from finding their way to the ears of the public.

After a long descent towards the town of Buxton, the entrance leads, by a well-kept gravelled road, under a handsome gateway, to an open space, bounded on one side by elevated ground, with walks cut in the turf, parallel, one above another, and, on the other side by a circular colonnade. Within the colonnade are the post-office, show-rooms of bijouterie, marble ornaments, &c., also the three principal inns,—namely, the Great Hotel, St. Ann's Hotel, and the Hall.

It was my lot to go to the first of these, although they are all so inviting, as to outward appearance, that I had no particular reason for making a selection, other than because the porter who had seized upon my portmanteau seemed determined to deposit it in one of the others. Nor had I reason to repent my choice; for without disparagement to any other house of entertainment whatever, I may fairly say I never was in a better. The building is solid and spacious, the bed-rooms lofty, well fitted up, and the price of each marked on the door. The whole establishment is conducted altogether in a manner indicating that the superintending authorities are well versed in the *savoir vivre*.

For the very few days I was in the house, there was but one other individual besides myself in the coffee-room—an apartment furnished with maps, and in every particular more like a private library than a room in an inn; and it really was to me a source of regret when I compared the low charges in my bill with the fare that, under circumstances so

disadvantageous to the landlord, had been provided. However, it then being the race week, the stock in hand was probably more exuberant than usual. Besides the low prices above alluded to, a stipulated charge, on an equally reasonable scale, was made for the servants.

The site of the town of Buxton is highly elevated above the level of the sea; a fact one is inclined to forget, as, although for the greater part of the way from Manchester the ascent is gradual, the last mile of the journey is all down hill. However, the effects of altitude are perceptible to the senses.

When I rose in the morning, the weather felt cold, yet, as it was early in the summer, that was not extraordinary: the wind also hummed through the window-frames, almost as if it were November; but in this variable climate, even a severe change at any time of the year is not wonderful. On looking around in a country, as it were, a valley surrounded by hills, the purity and bracing effect of the air were at once remarkable, and the white fleecy clouds moreover, though the day was clear, being certainly nearer the earth than is usual in fine weather, that circumstance brought one at once to the natural conclusion that the earth was nearer to them. And then the matter of altitude occurred to my recollection.

Sylvan shade and retirement, when both can be procured, are always agreeable appendages to a watering-place, and though there is a spot where they may be had at Buxton in great perfection, yet it is very possible to remain there a long time without finding it out, merely on account of its being so immediately contiguous as to be mistaken for private property.

A piece of woodland affords a labyrinth so secluded that lovers and doves may wander therein, among purling streams and shady walks, and coo or whisper, side by side, protected by branches so luxuriant and leaves so thickly matted, that neither party, no matter how reasonably near, can disturb one another.

The approach to this grove is by an entrance, as it were leading to a shrubbery, close to the inn, and separated only from the road by a slight fence. Gravel walks lead in various directions through a garden and lawn, and thence diverge among large thriving trees, such as horse-chestnut, fir, birch, and sycamore. Amidst the branches of the sycamores a colony of rooks have established their domicile above, and below the smaller shrubs wave their branches in the shade—the willow, lilac, and golden laburnum. Not far removed, the scene is rendered still more rural by a pond, on which I counted no less than forty-two ducks; and, on its banks, abundance of poultry, including pea and guinea-fowl. Following the course of the walks within the thicket, the scenery is that of a wilderness, where occasionally a rustic bridge is thrown across the stream that trickles at one's side, and now and then one is invited to repose by commodious benches.

One chief feature of this retired spot is a hermitage of heather, the seat entirely encompassing the inner circumference, and here people have left behind them the traces of their meditations, having sat with sticks in their hands, and no doubt for want of something better to do, have poked and poked again, till they have made a deep round hole exactly in the middle.

Though it is not easy to conceive any plot of ground more tastily or neatly laid out, taken of itself, there is nothing uncommon in the plan or its execution; but the effect of space, within limits exceedingly confined, has been most ingeniously contrived. It really appears, while walking within this plantation, that one has wandered far within the recesses of a forest; and yet, after all, it is no more than a narrow belt of woodland carried, all the way round, along both sides of a ravine.

The buildings of Buxton much resemble those at Bath in appearance; the spring adheres at all times and seasons to the temperature of 80° ; the charge each time for dipping is two shillings; but there is a large reservoir, or cauldron, to which the public are admitted, and bathe, as it were, by the drove, at one shilling a head.

The number of persons who visit these waters on account of chronic lameness of every description, is very remarkable, and, no doubt, amounts to a proof of their efficacy; in the meantime it is amusing to observe the sympathetic gradation of habits and exercise with that of convalescence. The principal promenade of the invalids is upon the gravel walks in front of the colonnade, and as these extend one above another to the summit of the elevated ground, in proportion as the sick or lame person finds his strength increase, just in the same proportion does he advance higher up the hill; so that the patient, at first barely able to hobble along the lower walk, marks every day the progress of his recovery till lost sight of in his diurnal ambulation altogether.

I particularly noticed an old gentleman the first day I arrived; remarkable on account of his purple

but healthy face, snub nose, and chin projecting over his stomach as if on purpose to balance his body. All disease in his system had evidently flown to his heels, for the lower part of his legs and his ancles were so swollen as to be puffed out over his shoes, till his feet exactly resembled those of an elephant. In this state he was dreadfully lame, and a kind old lady accompanied him in his walks, always holding him tenderly by the point of his elbow. The waters achieved such a surprising effect on this old gentleman (who, by the way, but for this overflowing of the humours, must otherwise have been sound in wind and limb) that, in three days, to use a horse-dealer's expression, "he pulled out all but right." I afterwards met him at a distance considerably removed from the old spot, without his old lady, taking his exercise quite alone. He was however, as I imagine, irremediably spavined, or stiff in the joints; for, though he hustled along with great resolution, his pace was a sort of canter, one knee-joint doing double duty, while the other performed only half. As the swelling of his feet subsided, his shoes became too big, and clattered as he dragged them along.

* * * *

The extensive excavation known by the name of Poole's Cave, within a mile of Buxton, is a considerable point of attraction to the visitors; and it certainly is, compared with the rest of our English caverns, a very respectable burrow. By persons in the vicinity, who seldom diminish distances, or otherwise detract from objects of local curiosity, it is said to be in length six hundred and sixty-nine yards, neither a yard more nor a yard less, the last hundred

yards nevertheless being confessedly inaccessible, unless to those content to crawl and clamber, within confined space, over loose heaps of stone, and among abrupt ledges of the cleft rock. Having made the experiment, it appears to me, as far as I can judge, that the whole accessible distance is about three hundred yards; that is, a little more than half the estimate; but, taken as it is, Poole's Cavern loses a part of its just reputation from its proximity to the Devil's Cavern, in comparison with which all others sink into shade; besides, the exhibition has fallen into the hands of quiet, unpretending people, who thus make a small addition to their livelihood, and are content, without puffing or placarding, merely to receive those visitors who voluntarily are inclined to view it. To compare it with any other English cavern, that of Wokey Hole, in Somersetshire, strikes me as being the nearest as to dimensions, although the latter is somewhat inferior.

Having walked from Buxton, according to directions received, to the cottage of the guide, situated very near the mouth of the cavern, I was somewhat surprised to find her a woman. Whether on this special occasion, or in conformity with established custom, I know not, but she was attended by a motherly-looking person, also a female,—so that three of us entered the cavern together, each provided with a farthing candle fixed in a ring at the end of a short stick. At first, for the space of a dozen yards or more, we were obliged to stoop considerably; afterwards we went upright the rest of the way, though the ground underfoot was very rough and difficult to walk upon. In many parts the path led over a surface pointed and uneven, here and there

sprinkled with rolling stones, among chasms, where a fall might have been attended with serious consequences—especially by our feeble, uncertain light, every step seemed attended with the risk of slipping away, one knew not exactly whither.

However I might have been inclined to hold cheap the services of a female guide at starting, I had, very soon, reason to form a different opinion, finding that I really had enough to do to keep pace with my fair conductresses; for the ladies, with equal confidence, whether with or without the light of their candles, dashed onwards through the gloom as if familiar with darkness, and tripped along before me, as lightly, in comparison, as a couple of Diana's nymphs. Within these recesses, their advantages are such as no visiter can compete with; acquainted, by daily practice, with every inch of the ground, they know every stone on which it may be safe to place a foot, as well as those to be avoided as unsteady and slippery; whereas to decide for oneself, and select a footing at every stride, taking the chance whether or not the thing trodden upon may rock or roll, are matters not very conveniently determined in a hurry, or by the light of a farthing candle. As I plodded on, I could not help thinking, from time to time, as a drop of water fell sputtering into my miserable candle, what a predicament I should be in were my two guides, by way of a frolic, to desert me,—and I really was, in point of fact, neither more nor less than at the mercy of these women; a predicament in which I trust many a respectable personage has been before me.

At the distance of a hundred yards from the entrance of the cavern, the roof is of a considerable

height; and here is a spring of clear water, from which the poor people in the neighbourhood regularly fill their pitchers; thence, the path led onward by the side of a deep gully, the average height of the roof above varying from twenty to forty feet; although we could seldom discern either the roof or the bottom of the gully, the whole above appearing to be a huge unbroken mass of rock, exhibiting magnitudes and irregularities sufficient to leave an impression on the senses. I was quite satisfied with what I had seen, having walked long enough in the dark, when we arrived at the "Queen of Scots' Pillar," a column of stalactite or calcareous matter, deposited by the dripping of water, many feet in height; this point may be called the end of the journey, for here the cavern appears to terminate in a *cul de sac*. However, it is possible, by climbing up a few rude steps to the mouth of an aperture above, to crawl within it on the hands and knees a little farther, although the ladies were both disinclined to make this latter experiment. On our return we passed through a small natural tunnel, leading to the gully, along the bottom of which we now proceeded for some distance.

This cavern abounds with large and remarkable forms of stalactite, each dignified by a particular name,—generally that of some animal—though imagination must have been hard pressed to acknowledge the resemblance. Nevertheless some, are highly picturesque, consisting of uncouth masses, assuming all sorts of fanciful figures: even in the Devil's Cavern there are no specimens of stalactite equal to these: those in Wokey Hole in Somersetshire, before alluded to, of all others that I have

seen, stand next in rank. An extraordinary multitude of bats, by the way, inhabit the latter excavation. I visited it during the present summer, when a large space of the roof was covered by a herd of these little demons, hanging by their heels, close together, within a few yards of the entrance. My guide said that, in the winter, they invariably inhabit the interior recesses, approaching, as summer comes on, nearer to the entrance. On changing their position, they first drop off singly, and by twos and threes, letting go their hold on the rock: but always following each other, and congregating again in the new spot in a similar cluster.

The whole of the formation of Poole's Cavern, as is very well known, is limestone. Great quantities of lime are dug in the immediate neighbourhood, and conveyed by a tunnel, through an intervening hill, to the adjacent canal.

The limeburners and quarrymen have dotted the side of the hill with their extraordinary dwellings. These, from a distance, have a most unusual appearance, and resemble so many large ant-hills. They are literally burrows or holes, scooped out of the limestone rock, wherein the men live underground. I regret I did not go to the spot to examine them.

It is not very easy to procure, at these watering-places, correct information as to the particular points worthy of being visited in the neighbourhood; some of which are lauded far more than they deserve, and others just as much too little, according as it may suit the interest of him who replies to the inquiry. The best way, I believe, after all, of obtaining information of this sort, is to apply to the bookseller;

who, in the twinkling of an eye, pops into your hand a neat volume, price two shillings, as a general answer to all interrogatories.

Having received, in the first place, various and opposite directions as to the best way of being conveyed to "The Devil's Cavern," and "The Shivering Rock," I decided on hiring a gig, by which means I proposed to take a passing glance at the latter phenomenon, which stands close to the road, and then, leaving the vehicle at Castleton, walk to the former. I procured accordingly a very respectable grass-green buggy, for which the owner restricted himself to the moderate charge of ten shillings.

The horse was what might be called good-looking, though the moment he lifted a foot from the ground I perceived him to be what is technically called "a short-stepper," that is to say, so equally affected with chronic lameness in all four of his legs, that nobody would say which was the worst, or detect any perceptible difference in the action of either: however, as that was rather an affair between the horse and his owner, and the cushion was in the mean time a comfortable one, I got on the seat and drove away. Starting with a tolerable notion of the animal's pace—in fact he had but one—five miles an hour, to which, being a willing brute, though he could do no more, he always kept up, I presently discovered still another failing, and this, whatever might be the cause, was mainly inconvenient. It was a violent predilection to the hedge on the near side of the road, and the off-side of his mouth was so hard as to be totally callous, so that a strong continuous pull on the off rein was indispensable, in order to keep the near wheel out of the ditch. At

first I thought he was stone blind. and meeting two farmers on the road, in order to save the trouble of getting out of the carriage, I begged one of them to be so kind as to examine his eyes. The farmer, lifting up the eyelid with his finger and thumb, said, he could see well enough; upon which, thankfully receiving the assurance, nothing remained but to drive on and apply force to force. It is extraordinary how frequently lazy grooms cause this defect by lounging a young horse too much the same way, the better to favour the right hand that holds the whip; and then again, the law of the road disposing the animal to the same bias, that law, or tendency to incline toward the near side, confirms the habit, till at last it becomes the law of nature. From such a cause the off-side of a horse's mouth is generally, as may be remarked, the more callous of the two; yet I never in my life recollect to have met with muscles and a crest quite so rigid as these.

"The Shivering Rock," removed only a few hundred yards from the high road between Buxton and Castleton, has the appearance of a huge earthy cliff, from whence, as people assert, stones are continually falling from the top to the bottom, and yet, wonderful as it may appear, have never been known to remain on the spot and accumulate. This miraculous story was related to me by several respectable people more than once, and always with a remarkable air of gravity and sound faith. Yet notwithstanding such preliminary information, the moment I cast a glance on the object itself, I was perfectly satisfied to waive the trouble of a nearer approach. Though I was within one or two fields' breadth of it, and that it was moreover on the lively side of my

horse's mouth, who would have taken me thither, had I for a moment ceased to pull at him, with all his heart; yet I absolutely had what some may call the bad taste to drive away. "The Shivering Rock," as before observed, an earthy cliff, is of considerable height, not quite perpendicular, but nearly so. Stones, from the size of a man's fist, to that of his head, are mixed up in the soil like plums in a pudding, or gravel in a gravel-pit. As regards the rolling or falling down of these stones, it is not wonderful that, so long as the earth adheres together, they remain in their places, or that, so soon as the latter becomes loosened by frost, moisture, or the ordinary changes of the atmosphere, they tumble down. The only question, therefore, that remains to be decided, is, What becomes of the stones after they are down; it being evident, from the fact that none are to be seen at the bottom, that those that have fallen must have gone somewhere? All I can say to this is, that provided the stone walls in the immediate vicinity be not composed of stones of the Shivering Rock, those of which they are built so nearly resemble the former as not to be discernible one from the other.

From this spot, or thereabouts, I caught the first glance of the site of "The Devil's Cavern," not an elevated spot, but a valley, than which very few in England are deeper. Down the hill, whereby I was now proceeding, a drove of ponies were wending their way slowly along towards the low land, each with a cargo of lime on his back, for the purposes of manure.

The town of Castleton is situated very near the entrance of the Devil's Cavern. If ever there were

an over-stocked market, as regards marble ornaments and mineralogical specimens, the produce of the Derbyshire caves, it is within the precincts of this said town—the windows of every small shop in the streets are crowded with articles manufactured and natural, and no less various are the ways and allurements by which a stranger is enticed to buy. It seems that no sooner does a “traveller arrive at the Red Cow” than every eye is upon him; at least, in my case, the moment I had disposed of my quadruped in the stable of the Inn, I was assailed by numerous importunities, to which, having a direct object in view, I failed to attend.

Nevertheless I could not help halting for a moment on my way to the Cavern, on perceiving on one of the shop windows a paper, on which was written “Admission free of expense;” at the same time, merely turning the objects of the proprietor in my mind, whose leisure at least could be of little value when disposed of so cheap, I observed that the door, which had neither lock nor latch, was fast closed by an iron bar. This circumstance, causing me to smile, an air of simplicity, I presume, flitted across my countenance; for immediately a sleek, rosy, smirking gentleman, who, it appeared, had been watching my motions all the while, now skipped across the kennel and withdrew the bar. For one moment only I stood upon his threshold; the first and almost the only object I saw within being “A Full and Perfect Account of the Devil’s Cavern. Price One Shilling.”

There are few palpable realities of nature so nearly allied to the impressions of fiction as this excavation. I never, since I was born, remember

meeting with any so striking. It exactly resembles the spot described in the pages of Virgil,

“ Spelunca alta fuit, vastoque immanis hiatu.”

A stupendous chasm, crowned by perpendicular rocks, here forms a lofty beetling cliff, and stunted trees spring spontaneously from the fissures of the stone, affording, together with thickly-matted ivy, an inaccessible retreat for flocks of chattering jackdaws. The magnitude of dimensions here presented, as well as the bold and graceful sweep of the cavern's jaws, exceeded all I had anticipated: the nearest object, by way of comparison, that at this moment presents itself to my mind, as likely to convey some notion of the entrance of this palace of night, is one of the large arches of Peterborough cathedral.

On entering within, the *coup-d'œil* creates an almost unlimited idea of space and profundity. Nothing is wanting, as far as the eyes can comprehend, to produce such a sensation, nor can a more characteristic vestibule of the pale Prince of Darkness be found than the lofty and ample vault, most properly denominated “The Hall of Pluto.” There are, nevertheless, certain appearances, which serve, in a great degree, to dissipate the illusion, and disturb the succession of fanciful images, now rapidly, as the eye ranges along the vast subterranean vista, engendered on the senses,—appearances calculated at the outset to incline the mind to plain matter of fact, reduce speculation to definite space and measurement; as well as drag the thoughts downwards towards terrestrial matters by a direct appeal to the pocket. In the first place, a cordwainer and his assistants

have established themselves, and daily work at their trade, within the entrance of the cavern; and in the the next, the regular charges for the admission of visiters are promulgated on a board suspended on the side-rock. These charges are as follow for one person:—For a guide, 2s. 6d.; candles, 1s.; a blue light, 1s. 6d.; and thus, in a decreasing scale, according to the number of the party.

On setting forward to explore the recesses, I could not help thinking that had at that moment a ragged urchin stepped up with the exclamation of “A link, your honour,” how gladly I would have remunerated him, for our shilling’s worth of candles were comprehended in two, of which the guide carried one, and I the other; such mode of proceeding being, though customary, the very worst that can be imagined. A greater extent of prospect would be penetrated by the light were the guide to elevate both candles at the end of a pole, instead of one being thus carried by the visiter close to his own nose. The path all the way is smooth and even, leading by the side of a ravine, wherein a stream trickles along towards the entrance of the cavern; therefore the said path somewhat resembles the towing-path of a canal. The whole distance from end to end is accounted eight hundred yards, instead of which one might write down five hundred, and probably then be nearer the mark.

After proceeding a considerable part of the way by the side-path before mentioned, the breadth of the cavern becomes considerably extended, till progress is impeded by a lofty rock which stretches directly across the track. The stream here makes its way from beneath a low arch or tunnel, under the rock, thence occupying a wider channel, and as it tra-

verses the open space, its widening banks assume, by degrees, the appearance of a pool. This pool is "the river Styx," and the tunnel, or arch, is now to be passed by the help of a small punt fastened to the shore; the dark aperture being precisely calculated to call to mind one of the most interesting of the adventures of Sindbad the Sailor.

The preparations for the passage against the stream are simple enough, namely, to lie on one's back, on a wisp of damp straw, at one end of the punt, while the guide occupies the same position at the other end. The guide then drags the punt through, grasping the points of the rock with his fingers; and, as he was performing this service, he extolled, at the same time, this wonderful phenomenon of nature, and said there was nothing else in the world to equal it. As we were creeping slowly along, I happened to remark above, by the light of my candle, as I lay on my back, as I thought, marks of the jumper chisel; an indication of the rock having been blasted, and a proof, consequently, that the tunnel is artificial. This he stoutly denied: so I attempted to stop the punt, on which he pulled harder, and we both pulled opposite ways; but, luckily, I got on one occasion a better hold than he, and ascertained the fact. The truth is, that a more commodious passage might have been readily cleared over the aforesaid rock, but the proprietors have preferred to enlarge the natural channel of the stream, originally impassable, by the tunnel,—thus creating a difficulty to produce an effect.

After completing this voyage, in extent only a few yards, no other obstruction is encountered in the way. At the extremity, the altitude becomes very

considerable; and here one has particular cause to lament the want of sufficient illumination; for the dimensions of the cavern altogether are, at this part, grand and extensive. The exhibition concluded by the display of a single consumptive blue light, which the guide, by the help of a couple of scaling ladders, placed on an elevated position, estimated by himself as forty yards, though probably not more than as many feet. In a few seconds the eighteen-penny-worth of sickly flame expired, hardly allowing the man time to find his way down the ladder.

Although I made a premeditated visit to the Devil's Cavern, I found myself beset at various points, on my way thither, by placards and invitations, calculated to allure me from my course, and divert my steps towards the Speedwell Mine. As to the comparative merits of each—in the one case, they are obtruded on the observation, while the beauties of the former lie shrouded in their own excellence. On leaving Castleton, I was some minutes, for want of correct information, quite undetermined which of the two caverns to see first; and had I not then time and opportunity to inspect them both, I can hardly, at this moment, say which of the two—the Devil's Cavern or the Speedwell Mine—would have had the preference. For it was impossible to ascertain, at a short notice, from those of the inhabitants to whom I made application, which of the two excavations were the better worth seeing, owing to that natural combination in society that prevents one man from prejudicing, under any circumstances, his own or the interest of his neighbour. It is perhaps more natural than unaccountable to what an extent this feeling prevails, and how it tends, on some

occasions, to bind even the reputable and disreputable together. Thus as to the Speedwell Mine, no matter under what form I put the question, the answer only tended to show how various are the ways to keep a man in the dark without actually putting him underground. The best way after all of obtaining experience is to buy it. Having done so, I am enabled to declare that the Devil's Cavern is really a wonder of nature; the Speedwell Mine, on the contrary, a counterfeit.

A mile before arriving at the spot, or even before knowing exactly where it is, a stranger becomes versed in most of the leading particulars; such as,—“The wonderful Speedwell Mine.” “Progress made in a boat 750 yards underground.” “Large cavern, where a cascade roars like distant thunder.” “A bottomless pit, a pool, or abyss, wherein a plumb-line of sixty-four fathoms has not found bottom.” And so on.

Progress in a boat is certainly made, and I dare say for the distance underground stated in the specification; but the channel is nothing more than an ordinary level, neither a wonder of nature, nor an unusual work of art,—many similar may be seen in the coal mines. In the present case, in consequence of the failure of a lead-mining speculation, the level in question filled with water the moment the means adopted to pump out the latter, and prevent its accumulation, were discontinued.

The cascade “roaring like distant thunder” is but a dribbling rivulet, artificially secured by a dam, whose sluice is suddenly let loose by the guide; which manœuvre causes nervous people to start, and thus produces an effect.

Then for the pit,—whether it be bottomless or not,—all I can declare is, that I was not even enabled to see the surface.

The expedition from one end to the other was effected, in the first place, by descending a long flight of stone steps to the level, or subterraneous canal, before alluded to. Here the guide untied a large punt fastened to the steps, in which we could sit upright while he propelled the same along the level, by grasping wooden pegs driven for that purpose into the rock on both sides, the water not being quite three feet deep.

At the extremity of the level we disembarked, and found ourselves in an open space, where certainly the altitude is very considerable, the top, by the help of a blue light, not being perceptible. Here the stream of water appeared trickling down a steep descent, and afterwards passed out of sight under the rock. The guide said the stream was the same which afterwards flows through the Devil's Cavern; there is no reason to doubt the assertion, and it gives reason to reflect upon the various unexplored caverns, natural excavations, and reservoirs, which, no doubt, influence the course of streams as they pass through the bowels of the earth.

Seeing we had advanced to the end of our journey, and could explore no farther, I ventured to ask when it was probable we might encounter that cascade whose waters roared like distant thunder? Whereupon the guide made manifest that, in order to generate the thunder, it was indispensable himself to play the part of Jupiter. Accordingly, approaching a wooden tank, containing two or three hogs-heads, and lifting up a sluice at the bottom, all the

water rushed out. After this parturition of the mountain, I asked for the abyss. He flung a fragment of stone, in a line with the water's course, some distance within the passage or tunnel. The stone fell, and I heard a splash;—and that, though it sounded as if the water were deep, concluded the exhibition of the “bottomless pit.”

Nothing now remained but to remunerate the proprietor, who lived in a cottage at the entrance of the cavern, for as much as I had seen; on which occasion I found him in a state equally inclined to see and charge double. The interview ended in my being cheated, and obtaining nothing in reply to remonstrance but—fumes of rum!



CHAPTER VIII.

MATLOCK.

Stage-Coach Journey to Matlock—A Bride and Bridegroom abroad—A prolific Lady at home—Old Bath Hotel—Window Scribblers—Welcomed by Musicians and Fruit Women—The Caves—The Fluor Cave—The Derbyshire Cavern—Intelligent Guide—"The Derbyshire Neck"—A Flock of Young Ladies—The Cumberland Cavern—The New Speedwell Mine—The Rutland Cavern—Mr. Mawes's Show-rooms.

I TOOK my place in a two-horse coach which departs every day from Buxton, wherein a young lady and her very young bridegroom, for such I took him to be, occupied the opposite seat. Having probably passed their honeymoon at Buxton, they were returning, as they said, to Sheffield. Their looks and behaviour caused me to arrive at the above conclusion, as well as other indications, such as the ring on the lady's finger, and the various frivolous changes she insisted on among parcels carried in the gentleman's pocket; besides, both simpered on the subject of domestic felicity, and declared that the walks, shrubbery, and hermitage at Buxton were quite enchanting. The young gentleman, an arch-looking little being, and an apology for a husband, certainly had youth on his side, being under twenty; but he was a starveling, very probably an abortion, for the lids of a pair of large eye-balls were imperfectly separated, as in the case of a little dog ten days old. The lady, on the contrary, was at least half-a-dozen years older, of fine features, and a showy figure. On my side sat a fat married lady, holding a healthy little child on her

lap with remarkably large staring eyes. The bride showed much attention to the child, and, although with a patronizing air, talked very graciously to it, and to the fat lady, its mother, now and then: and, moreover, being laden with ornaments, she at last drew from her wrist a broad golden bracelet, and gave it to the little girl to play with. The child soon grew restless and cried, till other measures having failed, the fat lady, flattered by the attention paid to her infant, very reasonably considered herself as if at home, and in her own nursery,—and at the same time made preparations that caused the whole party to look different ways. In the first place, the young gentleman looked at the bride, saying something in her ear at the same time that made her frown; secondly, the young lady, drawing down a thick, white, plaited veil, looked discomposed, and as if she wished to find a way out of the coach; thirdly, the little child, with open mouth and outstretched arms, looked ready to devour its mamma; fourthly, the fat lady, resting her chin upon her throat, looked as if she thought the child's swallow not half big enough; and, fifthly, I looked, as far as I was able, passive, and quite determined to see nothing improper.

On arriving at Bakewell, and by this time the child must have been nearly choked, our party broke up. Here we met the Sheffield coach. The mother, child, bride, and bridegroom, went together to Sheffield, while I proceeded alone to Matlock, and took up my quarters at the old Bath Hotel. There happened then to be no company in the house. I was ushered into the public room, a large rambling apartment, of which the floor was so rickety, that at

one part especially there appeared serious chance of tumbling into the cellar. The furniture looked ancient and uncomfortable; a huge screen of faded moreen, a small jingling pianoforte, and, for the accommodation of a single individual, no less than thirty-seven ill-fashioned chairs. My bed-room, of which there were a score similar, in the same corridor, was no bigger than the state-room in a ship.

The activity of some folks' minds is surprising; under all circumstances that can possibly be imagined, they contrive to find a vent by their effusions in prose and verse, and bequeath thoughts to others on a wall or window-pane, no matter whether the poetaster be a prisoner about to be hanged the next morning, or, as it now appeared, the votary of pleasure at a watering-place. At all events, I confess I dedicated some minutes to reading the various couplets in verse, moral sentiments, and names of people inscribed on the glass of the windows in this public room, of which every pane was absolutely covered. I transcribe two or three, verbatim, in order to show the description of feelings entertained by the inhabitants of this celebrated watering-place, as they may have been engendered at different times towards each other. For instance,

“ Now you are gone, my dearest B.,
Matlock has no charms for me.”

Then in prose,—“ Charming Miss A. Black-eyed Miss B. Grey-eyed Miss F.” After which, in another handwriting, “ Are gone, thank Heaven.” Again, “ Hump-backed Miss B. looks kind at Colonel L.” And so on——“ Ex pede Herculem.”

I had no sooner finished my dinner, sitting alone

at one end of this spacious room, when the delegate of a trumpery band of music, without knock or apology, advanced unceremoniously, the glasses jingling at every stride, and “hoped his honour would remember the music.” As soon as he had departed, in came fruit-women, offering fruit to sell; so that it appears they all collect in a flock, attracted, like condors of the desert, to pounce upon the first solitary stranger who, at the beginning of a season, arrives at the hotel.

However, as I drew my chair to the window on a fine summer’s afternoon, I could not help feeling a shade of sympathy for those who might possibly sit there in December, rejoicing such was not likely to be my own lot; and feeling that, with the enjoyment of so lovely a rural prospect as appeared without, it were over-fastidious to complain in fine weather of matters within.

There are few spots in England, or elsewhere, more romantically grand than the lofty ridge of rock which rises immediately above the town of Matlock. The contrast is particularly striking between the bold outline, formed by rugged points of limestone rock, and the brilliant verdure of the trees and shrubs sprouting from the fissures. The whole is rendered still more beautiful by the river below, whose sheltered surface is usually smooth as a mirror.

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Each of the several caves in the immediate vicinity of Matlock is vaunted by its individual proprietor, and his friends, as being the one superior to all the rest; therefore, as I had nothing better to do, I visited the greater part of them one after another. In a limestone stratification abounding in

subterraneous cracks and gullies, and where lead-mines have been at various times opened, and again deserted, it follows that the natural excavations aforesaid, become in time so blended together with the artificial levels, that at last it is difficult to determine which is which. In the meantime, in order to turn to account the chivalry of the visitors of Matlock, every description of hole into which a man can crawl on all fours is made private property; there being those in the world who, were an old woman to stand sentry over a jay's nest, would pay a shilling to be allowed to climb a tree and see it. These caves, were it not that the supply is fully equal to the demand, would yield an ample harvest to the proprietors; but, as it is, there are so many, that competition has effectually kept down the price of admittance. One shilling is the stipulated charge, and one cannot help forgiving the eagerness with which the poor people who exhibit them solicit patronage. The trouble and labour they undergo is not trifling, and one is the more inclined to pity, from the liberality they display in illumination, and really grudge the light of ten or twelve candles' ends, furnished at their expense.

The Fluor Cave is nothing more than a deserted lead-mine, exhibiting occasionally irregularities of surface along the line chosen for the level. The advantages derived from inspection are rather negative than otherwise, as they consist chiefly in a well-swept path, and, thanks to the superintending housewife, a total absence of snails and slugs, to which she is a mortal enemy. The privilege, too, of walking upright is worth noticing, as, where little is to be seen on either side, it is just as well not to

knock the head against things one does not see above. The sides of the cave are chiefly of the fluor spar, from which it bears its name, though I saw no specimens worthy of observation in my walk from one end to the other. The ascent from the town is remarkably steep, the path leading through a thickly-planted jungle. The guide, an old woman, lives in a small hut, or rather a den, at the mouth of the cave; on arriving at which is seen at once the better part of the exhibition, namely, the rude group of fanciful rocks which rear their dark forms hard by.

The Devonshire Cavern is on a much larger scale than the Fluor Cave, and to those persons to whom such exhibitions are novel, is sufficient to convey to the mind a good notion of subterranean scenery. The guide is a civil, intelligent man, with a smattering of mineralogical science. On the occasion of my paying a visit to the cavern, when I called at his house, he happened to be absent, having already proceeded to the cave with a party of ladies. The wife, who bore the appearance of an industrious, over-wrought woman, undertook to conduct me; and it was distressing to observe how hard she toiled, with a heavy infant in her arms, to surmount a steep ascent, for the sake of so small a gratuity. Though she, like all the rest, was probably urged by a competitive spirit, yet poverty was evidently the main spring that set it in motion, for this poor woman, besides the burthen of a large family, contended against the malady common in the neighbourhood, called the "Derbyshire neck"—an endemic protuberance in the throat, or *goitre*. Five sisters, as she informed me, were all similarly affected, more or less.

The complaint almost exclusively attacks females; male cases being extremely rare.

When we arrived at the cave, we entered by a narrow level, along which we proceeded a considerable distance, till the sides, diverging by degrees, disclosed at last a natural excavation. Here the dimensions were of considerable magnitude, the path ascending by a flight of uneven steps, to an open, wide space above, whose flat roof was wholly unsupported for a great extent.

As the party whom we were seeking appeared in the distance, they created a very picturesque effect. Upwards of twenty young ladies on the high ground, each with a tallow candle at the end of a long stick in her hand, were approaching to meet us, the foremost having already arrived at the summit of the steps. The light being strongly reflected on their countenances, the outlines of their figures were particularly distinct, as they stooped down occasionally here and there to pick up a piece of spar, or cautiously explored the way before them, holding down their tapers. In the mean time, their tongues were not idle. On they came, like a flock of young geese, with the gander in front; for there marched the guide, hammer in hand, displaying at every moment his activity and gallantry, by severing from the rock, with his instrument, bits of spar, (here of exceeding good quality,) the particular object of any lady's fancy. His daughter, too, a little girl of fourteen, was engaged in a similar occupation.

There is a particular spot at this part of the cavern, so suited for the exhibition of the witches' scene in *Macbeth*, that the guide, with the assistance of the rest of his family, has been induced

to undertake the performance, whenever a sufficient number of visitors are inclined to patronize the exhibition; and here those who delight in the illusions of fancy have an opportunity of being gratified at the display of a picture, the chief features of which are the work of nature.

The Cumberland Cavern is merely a deserted lead mine. Within, a fine group of rocks are piled upon each other, and rest on exceedingly small points. To this part of the cave, which is probably natural, has been given the name of "The King's Palace."

On the occasion of making a visit to the "New Speedwell Mine," I discovered that there is a right and a wrong road from the Cumberland to the Rutland Cavern; the former descending straight from a point on the side of the hill, first into the town, and then up the opposite brow; the latter, keeping the elevation, and making a circuit along the summit. The latter is the track recommended by him of the Cumberland to his visitors, as being both easy to find, and the shortest; in my case it proved certainly not only the longer, but the most intricate,—however, had I not pursued the track in question I should never have seen the New Speedwell Mine, the name of which would have alone deterred me from going thither. I should have been determinedly averse to entering the new mine, having before been so thoroughly bamboozled at the old one; but as I was walking along by this route on my way to the Rutland Cavern, I was suddenly accosted by a poor old woman, watching like a spider at an angle in the path; so that, beset by her importunities, and persuaded by her miserable ap-

pearance, I suffered myself once more to be inveigled. The ancient creature looked comfortless, and exerted all her kindness and activity to please me: I did not, therefore, think the entrance-money ill-bestowed, though the interior of the cavern was not worth the trouble of exploring, taking into consideration the risk of breaking the shins.

Of all the Matlock Caverns, "The Rutland" best repays the pains of a visit. It is not only the most spacious of any, but the spar, of which the walls consist, is of a better quality: besides, there are good specimens of lead ore; and it is easier traversed than the rest.

At one part the guide has a clever mode of showing to the best advantage the interior and roof of a lofty chamber, by drawing up to the top, by means of a pulley, a wooden hoop which serves as a chandelier, and is garnished with tallow candles sufficient to throw a light upon the remarkable features of the place, and illuminate its extreme recesses. After descending a few rugged steps at the entrance, the walking within is then remarkably good; and as it is situated in one of the most picturesque spots in the neighbourhood, close to the town, there is not only more to be seen, both within and without, but the sight is obtained, moreover, at less trouble and inconvenience.

There are many rival shops, and exhibitions, or show-rooms, in the town of Matlock, all containing choice ornaments in spar and Derbyshire marble; petrifications also, or rather, preparations of calcareous matter, similar but superior to those at the dripping-well at Knaresborough. Many articles are the work of Italian artists. The principal dealer is

Mr. Mawes, to whose establishment I paid a visit, and hence, being once within, it is quite impossible to depart, without a direct impeachment on one's taste, or—making a purchase. For Mr. Mawes is really possessed of the talent of inducing people to buy articles without knowing the reason why, merely by the persuasive, silver-toned strain in which he recommends them. Treating the opinion of a customer with an air of consummate deference and respect, and giving every individual that enters his shop credit for profound knowledge of the *antique*; at the same time, he allows no one a chance to edge in a word sideways, and expose his ignorance. Taking then such scientific attainments as granted, he commences a fluent oration, descanting on the beauty of his statues with peculiar energy, sometimes pouring forth a torrent of classical information relating to their history; at other times allowing knowledge to exude and ooze out in such a manner, that a stranger, unless tolerably *au fait*, has little to add to the learned disquisition. In addition to the advantages above stated, proceeding from acquired talent, nature also, with considerable benevolence, the better to qualify him for his profession, has presented him with a mouth considerably above the middle size, a showy set of teeth, and lastly, a never-ending, still-beginning smile, that plays on his features from sunrise to sunset; that is to say, so long as he is in the act of entertaining his company. Thus, with a good figure and address, a due attention to attitude, strong knit knuckles and bony wrists, he passes from statue to statue, his sleeves tucked up half way

to his elbows, points out perfections to his customers, and gazes, in studied air and posture, at their symmetry of proportion, as if, like Pygmalion of old, he were in good truth and reality absolutely enamoured.

CHAPTER IX.

HALIFAX.

Adjacent Scenery—New Canal—Extraordinary Mode of supplying Canal-basin — Cloth Hall — Worsted Mill — Packing Bales of coarse Cloth — Wire-drawers' Establishment — Wibsey Iron Foundry.

THE features of the country in the immediate neighbourhood of Halifax are magnificent. The town is seated in a deep valley, surrounded by hills, which, especially on the road towards Manchester, are of a character equal to many of those so much admired about Matlock in Derbyshire;—enter which way one will, it is by a long continued descent: that from Huddersfield rather steeper than the approach from Leeds: indeed it might be called formidable even in Devonshire: while the scenery altogether is the more unusual and remarkable on the entrance to a manufacturing town. As the mail trundled along with a skidded hind wheel for more than a mile and a half, I was gratified by a splendid bird's-eye view of the houses beneath, and wreaths of blue smoke hovering in transparent clouds over the slated roofs. The pure breezes from the hills dispel the noxious vapours from the numerous steam-engines, and maintain through the streets a free circulation of the atmosphere, the effects of which are visible on the happy, healthy countenances of the children.

A great deal of good taste is apparent in the building and grounds among the environs, where

substantial comfort has been universally consulted ; the mountains' side is chequered by clusters of small detached edifices, disposed here and there in pleasing *vignettes*, along the banks of the deep ravine, which longitudinally, though rising far above the town, forms its site. A viaduct, two hundred yards in length, stretches across this ravine : it is supported on six arches, the middle ones of which are about sixty feet high, although the rivulet below is so narrow that a man might easily leap over it.

On observing the altitude of the ground on every point of the horizon, it seems a matter of wonder by what route the waters find their way to the sea,—for Halifax, within a few years, has affected a junction, by a cut of a mile and a half, with the Rochdale Canal, forming a point with the rest of the vast inland navigation, that spreads like a net-work over the whole face of the country, and connects the rivers of the Mersey and the Humber.

It is a matter of observation rather singular, besides being a proof of the perseverance of commercial enterprise, that owing to the abrupt declivity of the hills which overhang the line of the new cut, it has not been found practicable to form reservoirs, so as to retain and economize the torrents that rush in rainy seasons along the valley ; so that very extraordinary means have been resorted to for securing a constant depth of channel. These means are the erection of a steam-engine on an eminence a little more than halfway between the two extreme points. A shaft is here sunk one hundred and nine feet deep, to the bottom of which a tunnel brings the water from the Rochdale Canal ; it is then raised by the engine to the upper level, whence

another aqueduct carries it to the canal-basin in the town: so that the said canal-basin is actually fed by water raised one hundred and nine feet, and conveyed by artificial means one mile and a half underground.

The manufactures of Halifax are various—comprising articles of cotton and woollen cloths, but chiefly merinos and the finer sorts of worsted. The Cloth Hall, or Piece Hall, as it is termed, is a plain, spacious building, inclosing an oblong area. A paved walk extends the whole way along the sides: on pacing this, I found the longer side one hundred and ten yards, and the shorter eighty-eight yards. One of the former is elevated to three stories; the one opposite contains only two, owing to the inequality of the ground. Within the building there are three hundred and twenty-five rooms, appropriated to the vendors of stuffs, who attend on the market days. There are also, below, ground apartments, which complete the number of the chambers, as it is said, to that of the days in the year.

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I visited the interior of a considerable establishment for spinning worsted; where, as the material is drawn to extreme fineness, the machinery is proportionably exquisite. In addition to the delicate workmanship of the various wheels of the carding machines, the cylinders appear more numerous than those of a cloth mill. The wool is here weighed in at one end, weight for space, as in the latter; but it comes out, not in long rolls, but, as in a cotton mill, in a flowing stream, as it were, of thin wadding. Thence it passes through various spinning machines,

some of whose spindles revolve three thousand times in a minute: last of all it is reeled off by hand. The reel, about five feet in diameter, is fed by twenty-five spindles. After four or five hours' work, it delivers a hank of delicately fine worsted, the size of a beehive.

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Happening to pass by a warehouse, wherein labourers were employed in packing bales of coarse blue cloth by the hydraulic press, I observed their mode of operation. It was performed by no means so daintily as the packing of cotton skeins at Manchester, described in another place: the latter being intended for exportation to Russia, and secured by iron plate; whereas these were merely bound with rope, to be sent to London. In the present instance each bale contained twenty-four pieces of cloth, and was squeezed to about two-thirds the original size. The machine differed from that at Manchester, inasmuch as a well was sunk in the floor in order to allow the plate to descend, so as to admit greater bulk within the press. The pieces of cloth were laid one upon another, encompassed by coarse sack-ing; the bale was then subjected to compression, and afterwards the rope adjusted and strained without other aid than the ordinary lever.

The manner of fastening is particularly simple: the rope, being in one piece, with a loop at one end, is laid upon the ground, doubled unequally, that is to say, in the form of the letter V, having one side longer than the other—the loop end is the short end. The bale is placed upon the rope, the long and short ends of the latter being on one side, and

the apex of the V on the other. The long end of the rope is now passed over the top of the bale, through the apex of the V, brought back again at an angle in a contrary direction, and made fast in the loop.

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I visited a wire-drawer's establishment ; where the wire, which comes from the foundery a quarter of an inch in diameter, is reduced to various sizes, and finally drawn out as fine as a hair : thus prepared, it is capable of being woven by ordinary weavers, as if it were flax or cotton. The perfection to which this wire cloth has already arrived is sufficiently testified in its general adoption for window blinds ; besides which a great deal is sent to the West Indies, for mosquito curtains, &c. It is certainly a beautiful fabric, combining delicacy of texture with strength in an especial degree, and capable, no doubt, of being applied to many uses not yet thought of.

Nothing can be more simple than the process of drawing wire ; in fact, too simple to be consistent with true perfection ; though were the process of thinking to be confined to the mere practical object in question, it would be hardly worth while to notice the slight deviation in a hank of wire some miles long from a perfect cylinder ; a difference so little as to be probably imperceptible, in any of the purposes to which wire is applied, whether in the production of musical sounds or otherwise. The only mode adopted, I believe, up to the present day, of making wire, is to drag it by force through a small hole in an iron block, and afterwards through a similar but smaller hole in another block, and so

on, through one hole after another, until it is brought to the size required. In the meantime, each hole is subject, by continual attrition, to gradual enlargement, and this defect is submitted to for a long time, when it is closed by a few smart blows of a hammer, and re-bored of the original size. Consequently, the size of the wire changes as the diameter of the hole enlarges between the operations of boring and re-boring; and this change must be constant and gradual throughout the whole operation. Insignificant as the variation may be, diffused through a long hank, were the same divided in the middle, the difference of weight would be no doubt perceptible; whence it perhaps follows, that, to attune an instrument to perfect harmony, the nearer similar strings are cut from the same end the better.

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On the morning on which I witnessed the wire-drawing process, whereby the malleable and tenacious properties of iron are exerted in producing a minute thread, I visited the stupendous foundery on Wibsey Low Moor. Wibsey Low Moor is situated about five miles from Halifax, on the south of the road leading to Bradford; between the latter town and Leeds are the Bowling founderies: those of Wibsey Low Moor, however, are the larger of the two.

I descended from the coach, at a public-house on the turnpike-road, and walked about a mile to the works.

In this region of iron and coal, for the whole surface of the moor is rich in both, the approach to these magnificent founderies bears the type of uni-

versal combustion, as in the vicinity of the crater of a volcano: to witness a more awful picture, produced by the combined features of fire, smoke, and ashes, an individual must bend his steps at least towards *Ætna* or *Vesuvius*. For a long way the surface of the moor is covered with heaps of calcined shale and cinders, the collection of many years, upon which, here and there, plants of furze have spontaneously taken root: from these the eye, attracted onwards, rests on a cluster of low blackened buildings, containing numerous fires, for the purpose of charking the coal used in smelting the metal; and among the more massive piles of brickwork broad flaring flames crawling upwards from the main furnaces exhibit an awful appearance; for the mouth of each of these furnaces is near ten feet diameter, its form that of an ordinary lime-kiln, and on the summit, in the midst of the eager flames, strange-looking wheels recall to the memory a whole host of mythological images—such as the instrument of torment whereon the ill-fated *Ixion* expiated the vengeance, not undeservedly, of ancient *Jupiter*. These wheels are appendages of the machinery by means of which the ore is dragged up an inclined plane, on iron waggons, to the mouths of the furnaces; which waggons, self-acting, where no living power could perform the office, turn topsy-turvy, and there unload their contents. It is a noble sight to stand here and see the devastating element in such radiant glory, yet at the same time under perfect subjection; but awful to reflect, that science will never, probably, wholly avert those catastrophes which, either by combustion or explosion, in the melancholy reverse of fortune, serve to remind man

of the finitude of his wisdom, and occasionally obtrude the fortunes of the victim on the victor.

The seams of coal on the Moor are shallow, generally not more than 26 inches deep. It seems incredible that men are capable of working in such narrow compass; yet such is the case; neither are those employed particularly undersized.

Previous to the iron ore being emptied into the furnace, it is *roasted* in a kiln: it is then put into the iron carriage, and, as before alluded to, dragged up the inclined plane and capsized into the furnace. The machinery for this service is worked by water, and the carriage is flung over at the top by a curved plate of iron, which inclines downwards: under this plate the fore-wheel of the carriage proceeds, till the latter, losing its equilibrium, turns fairly over.

The most various operations are conducted within the interior of this large establishment; and the most ponderous articles manufactured, from an iron bridge to an attenuated plate or rod, amidst a scene wherein the four ancient elements are subjugated by human power and intelligence. Here, the ore dug from the bowels of the earth; there, the steam-blast rushing through the furnaces; together with various contrivances for the economy of water, and application of its power to the machinery—all these sights and sounds are sufficient to raise, even in the apathetic mind, the sentiment of veneration.

Within a vast shed, or workshop, so extensive, that being under one part of the building it is not possible clearly to perceive what is going forward in the other, among the furniture not the least remarkable were the huge cranes, the mighty agents for the casting pits in the centre of the floor, capable

of raising fourteen tons and upwards, and equipped with iron blocks and quadruple sets of chains. From an orifice, at the bottom of the door in the furnace, the *scoria*, or blue dross, was sluggishly trickling in a steady creeping stream into an iron vessel, in shape like the body of a wheelbarrow, placed to receive it: when cool, the vitrified mass is turned out from this vessel in a cubic block, and broken for mending the roads; though it is extraordinary that, excellent as this material is for that purpose, it never was so applied till within the last eight or ten years: at present, more is so expended than is furnished at the foundry; the quantity disposed of last year being twenty-one thousand six hundred tons. The size of these heaps of shale and dross, the refuse of forty years, is quite extraordinary; those of the former, having been set fire to, are reduced to a substance like red tile: at this moment, supposing the whole were to form a cone in the centre of Grosvenor-square, I really believe its base would include all the houses. The premises, notwithstanding these indications, are now being enlarged, both as to new buildings, engines, and furnaces, in a proportion not less than as two to three.

To pass over the two first operations, whereby the iron, after being separated from the ore in the first furnace, and cast into pigs, is again liquefied by heat and re-cast in a shallow trough into slabs, which slabs, being remarkably brittle, are broken up and thrown into a third furnace; the next process is that whereby it is first beaten into a malleable form. Athletic men, bathed in perspiration, naked from the waist upwards, exposed to severe alternations of

temperature, some, with long bars, stirring the fused metal through the door of the furnace, whose flaming concavity presented to the view a glowing lake of fire,—were working like Cyclops. By continued and violent applications of strength, visible in writhing changes of attitude and contortions of the body, raking backwards and forwards, and stirring round and about, the yielding metal, they contrived to weld together a shapeless mass, gradually increasing in size till it became about an hundred pounds weight: this, by a simultaneous effort of two men with massive tongs, was dragged out of the furnace, radiant with white heat, a snow-ball in figure and appearance, along the paved floor. Now subjected to the blows of a ponderous hammer, it was wonderful to mark the vigour and dexterity with which the men contrived to heave the mass round and round at every rise of the hammer, whose every fall sounded like a mallet on a cotton bag, while the fiery ball was now turned one side, again the other side uppermost, with the same facility apparently to the operators as if it had been a horse-shoe. The glowing substance yielded like clay to the thumps of the hammer, and as it was pounded into form by the tremendous concussion, at each stroke the more liquid matter was forced from the centre and bubbled on the surface: thus what was spherical was soon brought to the shape of a slab or brick, which figure is the one preparatory to its being rolled into plates.

The weight of the hammer was at least four tons, and it was moved by an excentric wheel, which revolved above the extremity of its shaft. The simplicity and usefulness of the excentric wheel in mechanics, to produce such a motion as is here re-

quired, is particularly interesting and pleasing: in the present instance, were the wheel in question perfectly circular, the shaft of the hammer could receive no motion, but the former being in one part protuberant, the latter was depressed by coming in contact with the protuberant point in the circumference once in every revolution; a motion which may be easily elucidated by nailing a piece of wood on the outer rim of the wheel of a wheelbarrow.

The mode by which the two men who attended the hammer jointly threw their powers into co-operation was as follows:—one held a hook and the other a lever; he of the lever stood always ready to aid, by a seasonable and well-directed effort, him of the hook, adding his whole force, in one collected impulse, the moment the latter had taken his grip, to produce a force to fling over the mass.

The iron being by the above process manufactured into a slab, the next operation is to form a plate, by passing the slab several times in succession between a pair of weighty cylinders, whose position is continually adjusted closer and closer, as the plate diminishes in thickness, by a powerful press screw. The slab, again red hot, was placed between the revolving cylinders, the upper one of which fell with a jarring, clanking sound upon the lower, as the slab was speedily snatched through, and disgorged on the other side. The transit was momentary, and the impression at first trifling, the alteration in shape in fact scarcely perceptible, great as was the shock produced on the machine as the massive bulk was forced through; but the oftener it passed the greater the change, and every time, by a turn of the screw, the cylinders were adjusted closer

accordingly ; till what was at first the size of a folio volume, was brought to the dimensions of a Pembroke table. The manner in which the slab was handled on the present occasion, and passed over and between the cylinders, was as simple and dexterous as the former process : as it fell from the cylinders it was received by a man on a flat shovel, which shovel was suspended by a chain from the ceiling, at a point in the handle about a foot from the plate of the shovel. The handle was long, and so was the chain, so that the man was enabled by the above purchase to give way to the slab as it approached towards him, and when free from the cylinders, easily to push it over the top of both. It was then handed back by two men on the opposite side, by means of levers applied somewhat in a similar way.

The stupendous power of the shears here used for the cutting of iron is very wonderful. I saw a square iron bar, one inch and three-quarters the side of the square, cut asunder in an instant, with as much ease as a ploughman would bite off the end of a carrot. The mechanical appliance was the same as that adopted with the aforesaid hammer—that of the excentric wheel, and equal in power to the weight of the cutting limb, as well as that of the resistance to be overcome ; that is to say, the lever was here one of the second order, the action of the instrument being that of a pair of nutcrackers. On another occasion I observed a machine of this description, at a foundery in Leeds, worked also by an excentric wheel, but a lever of the first order, the action that of a pair of scissors. This instrument, though not so powerful as the former, produced an extraordinary effect in appearance : for as the excentric wheel continually

revolved, the blades opened and shut as it were spontaneously, after the manner of the jaws of a huge animal, munching, as if in expectation of food ; and the illusion seemed the more perfect when on a piece of iron being presented it was bitten through without an effort, and the motion, with unappeased voracity, still continued.

But the sight, or rather sound, of all others which created upon my mind the strongest impression was that of the air-blast driven by two powerful steam-engines through the main furnaces ; the two furnaces about twenty feet distant from each other—the engines in the rear of these. A cylindrical trunk, of a couple of feet diameter, extends from the engines, sending forth at right angles two smaller branches, decreasing gradually in size to about four or five inches at the extremities, which enter one at the bottom of each furnace, like the nozzles of bellows. No verbal description can do justice to the awful effect produced by the air rushing through these iron tubes ; and I was involuntarily led to the reflection to what extraordinary extent such a power might be applied in the production of musical sounds : for, combining the volume of air at command with the thrilling softness of tone already attained in the key bugle, the effect with which these two elements,—quality and quantity may, by and bye, be blended together, is almost indefinite. Not a word, though delivered with the utmost effort, was heard, spoken at the same time close to the ear. I have listened to a storm on the Atlantic, I have stood on the Table Rock at Niagara, yet never did I hear a sound in nature equal to this,—so terrific, or of so stunning a din.

There was an aperture in the main trunk between the diverging tubes, in which a large wooden peg was firmly driven by a mallet, and removed occasionally for the purpose of allowing the air to escape when the blast was too strong. This being removed, I placed my hand at the draft, when it required all my strength to retain it in its position. It was said that its force was sufficient to drive a man's hat to the ceiling. or to cause a wooden ball transfixed by a peg to dance in the air like a pea on a tobacco-pipe. Though I did not see either of these feats performed, I believe them both to be practicable.

The stupendous force of these continuous air-blasts is supplied in an equable never-failing stream from an air-chamber below, of ample dimensions: compared with an ordinary blow-pipe, its multiplied effects in engendering heat must be truly astonishing.

The heated air-blast has not yet been introduced in these founderies. I had an opportunity during the present summer of witnessing the operation of the latter at the Gartsherrie iron-works on the Clyde. There the object seems to answer as well as in the various other establishments wherein it has been introduced, namely, the effecting a considerable saving of fuel by introducing a hot blast instead of a cold one. I was informed the saving was equal to one-half. I saw the apparatus at work, but heard no sound whatever. The air passed first through a heated retort, and afterwards through a series of pipes into an air-vessel of a cylindrical form, and ten feet diameter by forty feet in length, consequently containing upwards of 3141 cubic feet of hot air. From this an equable continuous blast was sent into the furnace.

I have now related the principal objects I observed within the Low Moor foundry; besides which preparations were going forward for casting huge cauldrons, and various parts of the machinery of the West India sugar-mills. The models of the cauldrons were first built in brick, and then plastered over with cement.

I saw a cylinder, forty inches diameter, belonging to a steam-engine, fixed in a lathe ready for boring. The cutting instrument consisted of an inner cylinder with mortices, into which the blades were placed as required: the latter were merely plates of iron with a bevilled edge.

I saw the beam of an engine, weighing three tons, also fixed in a lathe; and, notwithstanding its vast weight, revolving on a point which entered only three-quarters of an inch, with as much ease as if it had been a peg-top: the point was, however, an extremely obtuse cone.

Out of doors the clanging din of hammers was incessant, as red-hot bolts were being riveted in the boilers, whose plates had been previously cast within the building.

I observed that all the sand used for the casting-beds was prepared by grinding sandstone. This is performed by a large cast-iron roller, moved round on a circumference plated with iron, by a couple of horses pulling at a lever fixed at the centre of the roller.

I regret I had not an opportunity of taking more than an extremely cursory view of the excellent arrangements for the economy of water by means of various reservoirs, to which, after being expended, it is pumped back again for the use of the engines.

As the drainage of the Moor is not considerable, without the greatest care, the supply would be very precarious ; as it is, there is sufficient. In one of the small reservoirs out-of-doors, containing water from the engines very warm, what might be called hot, were a parcel of ducks rioting in smoke, and apparently highly delighted.

Besides the water for the steam-engines, a supply is obtained to turn various water-wheels : one moves the large lathe for heavy bodies, another propels the waggon-loads of ore up the inclined plane and pitches them into the furnaces : sundry others are also required for minor contrivances.

CHAPTER X.

WAKEFIELD.

Southcotians on a Journey—Corn-Warehouses—Road to Huddersfield—Extraordinary Mode of preparing Stone for the Roads—Beggars and Ballad-singers—Pig-Market—Combing, Sluicing, and Lathering—Huddersfield Tunnel—Leggers—Dewsbury—Regeneration of old Garments—Rag-grinders—A Metaphysical Question—Shoddy—Tillage Muck.

A STRANGE-LOOKING pair, a father and a young person who represented his daughter, were my companions on the top of the coach from Leeds to Wakefield; they were members of the Southcote persuasion, and dressed, though probably according to regulations, as I considered in a very extraordinary way. The father was in age about forty, of a light dapper figure, carefully set off to the best advantage, and most remarkable as to the Vandyke-cut of his unshorn beard; in order to trim which to the present style of exquisite perfection, the scissors had evidently been put in requisition. His broad low-crowned beaver hat was of a reddish brown, and his gaberdine and Wellington boots fitted him so neatly, that without changing his costume he might have danced a quadrille without inconvenience. In short, he brought to my recollection Anstey's famous portrait of

“ ————— the Moravian Rabbi,
Who perfectly cured the chlorosis of Tabby.”

The daughter, a florid, healthy girl of eighteen,

wore, though in the middle of the day, a Parisian straw bonnet, decked with a huge, curling, full-dress bunch of white ostrich feathers, a blue cloth habit, the back seams of which were ornamented with a wide military border, the latter made of parallel stripes of orange-coloured silk-twist, and a petticoat plaited with broad plaits, disposed about the hips with great care, and laid one over the other with exceeding regularity—nay, as it were, with such geometrical precision, that as nature had been bountiful in those latitudes, they exactly resembled the meridian lines of a terrestrial globe.

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The town of Wakefield is the emporium of grain for the manufacturing districts, by means of a canal communication to the north, the east, the west, and the south, all over the country. The western line, towards Manchester, diverges in two forks; the one proceeding through the Huddersfield Tunnel, an underground channel of three miles and a quarter in length, and the other by a more circuitous track through Rochdale. Large shipments of corn are brought hither from the counties of Norfolk and Lincolnshire by the Trent and Humber.

It is not easy to form an idea of the very enormous extent of the storehouses at this place without the actual use of the eyes: they really seem calculated to hold under their roofs, not only all the corn in England, but that of the Baltic into the bargain. For the extent of a mile, the banks of the Calder are studded on both sides with buildings of magnificent dimensions; two-thirds of which have been raised within the last twenty years, and yet individuals are building new ones. I must confess I had

previously entertained no sort of notion of the extraordinary quantities of grain deposited in these Egyptian magazines. The river, besides, was crowded with sturdy sloops, laden in bulk to the water's edge; and the corn-factors, among whom, specially, the business by large transfers seemed to be conducted, were holding their court on the market-day. In whatever way this extensive warehousing of grain may operate upon the interests of the landlords, the farmers, or the consumers, I could not help thinking that the corn-factors, of all parties, were making the best livelihood.

Great pains have been taken with the road between Wakefield and Huddersfield; as well by a cut, of unusual depth, made for the purpose of lowering a hill, as by a peculiar process by which the stone is prepared for the roads. This being of a soft, crumbling nature, is placed in heaps, and with an addition of coal, actually subjected to fire and calcined, in order to harden it. For the last few miles, the blue vitrified dross from the Wisbey Low Moor iron-works forms the very best of all materials—the most level and durable surface.

On entering the town a painted board is exhibited, proscribing, on the part of the magistrates, “all beggars, vagrants, and ballad-singers;” a classification, I could not help thinking, extremely judicious, and worthy of general imitation. Idleness is an anti-English vice,—not tolerated, at all events, at Huddersfield.

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The Huddersfield pig-market has attained much celebrity, and is furnished almost exclusively from Ireland, *via* Liverpool, whence these animals pass

in droves, not only through the manufacturing districts, but even to more remote parts of the country. The breed of Irish pigs is improved tenfold within the last few years; besides, as they live on more equal terms with their masters than the English hog, as regards the privileges of air and exercise during the period of fattening, they are considerably less oppressed by their weight while on the march. Thus they are greedily bought up, and are really worthy, in every sense of the word to a spectator, of the encomium passed on them by a farmer, upon whose recommendation I made it a point to attend on a Huddersfield market-day, "Lord, sir," said he, "they are such beauties!"

On arriving at the market-place half an hour before the time of commencing business, not a pig was to be seen; but on learning that the different droves were at that time undergoing ablution at the river, I walked thither in order to see the performance. Few, indeed, are the services a pig receives at the hands of his master without remonstrance; and reasonably,—for never, as a Greek author has somewhere observed, are human hands laid upon him but either to curtail by cunning devices his animal enjoyment or execute upon his person one vile purpose or another: however, on the present occasion, to my great surprise, for I should have thought washing second only to shearing, every pig submitted to the ceremony with most perfect complacency; in fact, being heated and feverish after their journey, they seemed delighted by the cooling process. The herd being driven up to their bellies in the river, one man was entirely occupied in sluicing them with water from a pail, which he continually dipped in the stream

and emptied over their backs. Another fellow anointed them one after another with yellow soap, and so soon as he had raised a copious lather rubbed the hide, first soundly with his hands, and then with the teeth of a horse-mane comb;—now and then, in particular cases, it became necessary to have recourse to an instrument of still greater power,—his broad thumb-nail. After rubbing and lathering for some time, they were sluiced again, and as pailful after pailful descended on their hides, no sound was heard among them—not even a wince or snort; on the contrary, every now and then a soft happy grunt (and a grunt is an expression of happiness among the whole animal kingdom, rational or irrational) seemed unequivocally to describe their perfect content and satisfaction.

Their bristles shining like silver-wire, each lot were now driven to the market-place, where, provided with ample beds of clean straw, they disposed themselves according to their separate parcels, with such economy of space, that though there were not fewer than 600 present, a spectator would have been inclined considerably to underrate their number.

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The Huddersfield Tunnel is a most extraordinary work. Between Huddersfield and the village of Marsden on the road to Manchester where it commences, there are on the canal forty-two locks, the turnpike road leading by the side, along higher ground, through a romantic glen, which assumes gradually a more and more mountainous character. The mouth of the tunnel is about seven miles distant from Huddersfield, a little to the north of the

canal. Here the road commences a stupendous ascent, of a mile and a half in continuation; so that, were it not that the tunnel proclaims its own wonder, being in length three miles and a quarter, cut through the middle of a solid mountain,—the face of the country altogether would seem to bid defiance to such a work of art. The cost is said to have been 300,000*l.*, which brings the expense to 1*l.* 5*s.* 3 $\frac{1}{3}$ *d.* per inch; but notwithstanding the line is regularly worked, the undertaking has failed to reimburse the original proprietors. As the dimensions are too small to admit of two boats passing each other during their passage through, strict regulations are enforced as to the times when they are permitted to enter at either end. Accordingly they adopt intervals of four hours, continually during day and night; when the towing horses are sent over the hill in charge of a man, who receives sixpence for conducting each horse. The span of the circular aperture is about ten feet; the height not sufficient to allow a man to stand upright in the boat,—those used in this navigation being of a narrow, compact build, suited to the service, and capable of carrying from twelve to twenty tons.

The operation of working the boats through is a singular one; and performed by a description of labourers adventitiously hired for the purpose. As there is generally work to be had, a sufficient number continually present themselves, who having remained a few days or a week, or as long as it suits them, receive their payment, pursue their march, and choose another occupation. These men, from the nature of their service, are called “leggers,” for they literally work the boat with their legs, or

kick it from one end of the tunnel to the other ; two “ leggers,” in each boat lying on their sides back to back, derive a purchase from shoulder to shoulder, and use their feet against the opposite walls. It is a hard service, performed in total darkness, and not altogether void of danger, as the roof is composed of loose material, in some parts continually breaking in. Two hours is the time occupied in legging a boat through, and a legger earns a shilling for a light boat ; after twelve tons he receives one shilling and sixpence ; and so on. Adjacent to the tunnel are considerable reservoirs of water on the higher ground ; I saw one containing about twelve acres ; another, considerably more elevated, is a great deal larger. This latter I did not see, but a miller, whose works receive the stream as it passes towards the lower reservoir, told me it enabled him, on its transit, to set on three pair of stones of four feet ten inches diameter, for three weeks, day and night ; he said it measured forty acres.

The town of Dewsbury is not only celebrated for its manufacture of blankets, but also for a novel business or trade which has sprung up in England, in addition to the arts and sciences, of late years,—namely, that of grinding old garments new ;—literally tearing in pieces fusty old rags, collected from Scotland, Ireland, and the Continent, by a machine called a “ devil,” till a substance very like the original wool is reproduced : this, by the help of a small addition of new wool, is respun and manufactured into sundry useful coarse articles, such as the wadding which Messrs. Stultze and Co. introduce within the collars of their very fashionable coats,

and various descriptions of druggets, horse sheeting, &c.

The trade or occupation of the late owner, his life and habits, or the filthiness and antiquity of the garment itself, oppose no bar to this wonderful process of regeneration; whether from the scarecrow or the gibbet, it makes no difference; so that, according to the changes of human affairs, it no doubt frequently does happen, without figure of speech or metaphor, that the identical garment to-day exposed to the sun and rain in a Kentish cherry-orchard, or saturated with tobacco-smoke on the back of a beggar in a pot-house, is doomed in its turn, "*perfusus liquidis odoribus*," to grace the swelling collar, or add dignified proportion to the chest of the dandy. Old flannel-petticoats, serge and bunting, are not only unravelled and brought to their original thread by the claws of the devil, but this machine, by the way, simply a series of cylinders armed with iron hooks, effectually, it is said, pulls to pieces and separates the pitch-mark of the sheep's back,—which latter operation really is a job worthy of the very devil himself.

Those who delight in matters of speculation have here an ample field, provided they feel inclined to extend their researches on this doctrine of the transmigration of coats; their imagination may freely range in unfettered flight, from the blazing galaxy of a regal drawing-room, down to the night-cellars and lowest haunts of London, Germany, Poland, Portugal, &c., as well as even to other countries visited by the plague. But as such considerations only tend to put a man out of conceit with his own coat, or may afflict some of my fair friends with an

antipathy to flannel altogether, they are much better let alone: nevertheless, the subject may serve as a hint to those whom a spirit of economy urges to drive an over-hard bargain with their tailor, or good housewives, who inconsiderately chuckle at having been clever enough, as they imagine, to perform an impossibility,—that is to say, in times while the labourer is worthy of his hire, to buy a pair of blankets absolutely for less than the sheer value of the wool. These economists may treasure up much useful information, by considering well the means by which materials may be combined to suit their purpose; for the “shoddy,” as it is called, is as occasion requires mixed with new wool in various proportions; so as in fact to afford, by the help of various artists, in this free country, equal satisfaction to all parties, whether the latter be tidy or dirty by nature.

As I was anxious to see somewhat of the above process, I walked from Dewsbury to the village of Battley Carr, on the river Calder, about a mile distant, where there are several rag-mills, and paid a visit to one of them. The rags were ground, as they term it, in the uppermost apartment of the building, by machines, in outward appearance like Cook’s agricultural winnowing-machine, and each attended by three or four boys and girls. The operation of the machinery was so thoroughly incased in wood, that nothing was to be seen, though it consisted, as has been before observed, of cylinders armed with hooks, which, being of different sizes, perform their office one set after another, till the rags put in at the top come out at the bottom, to all appearance like coarse short wool. A single

glance at the ceremony going forward was quite sufficient to convey a tolerable idea of the business,—a single whiff of air from the interior of the apartment almost more than could be endured.

I will not undertake to render intelligible to the other senses what is an affair of the nose alone,—in other words, I will not attempt to describe an ill smell: first, because the subject is not agreeable, and next, because it is particularly difficult; indeed, I know not even whether it be a physical or a metaphysical question, whether or not a smell be, *de jure*, a noun and the name of a thing, having substance and dimensions, or whether it be an ethereal essence void of material particles,—as it were the benediction of animal matter departing from the physical to the metaphysical world, and at that very critical moment of its existence, or non-existence, when it belongs to neither. But if the smell of the rag-grinding process can be estimated in any degree, and, an inference drawn, by the quantity of dust produced, the quality of the latter at the same time not being forgotten, then some little notion may probably be given by stating, that the boys and girls who attend the mill are not only involved all the time it works in a thick cloud, so as to be hardly visible, but, whenever they emerge, appear covered from head to foot with downy particles that entirely obscure their features and render them in appearance like so many brown moths.

It is really extraordinary to observe, on taking a portion of shoddy in the hand as it comes from the mill, the full extent of its transmutation,—how perfectly the disentanglement of the filament has been effected; although, notwithstanding its freshened

appearance, time and temperature must have inevitably brought it nearer to the period of ultimate decay.

The shoddy thus prepared in the mill is afterwards subjected to the usual process of manufacture, and together with an admixture of new wool; and the help of large quantities of oil, it is passed through the discipline of the carding-machine, mules, &c., till a thread is formed, which latter is handed to the weavers.

But, alas! there is no such thing as perfection in human nature, or the works of man!—notwithstanding all possible exertions, there are certain parts and particles appertaining to these fusty old rags, that cannot be worked up into new coats, do what men will; and of which the shoddy, to do it justice, may be said to be wholly liberated and purified: such things, for instance, as the hides of ancient fleas that have lingered through a rainy season and died of rheumatism,—and so forth. Yet, in the present day, such is the enlightenment of man's understanding, that even all these, be they what they may, are scrupulously turned to account, being mixed with the refuse and that part of the shoddy too short to spin, packed in bales, covered with coarse matting, and thus shipped off to Kent as manure for hops. In this state, called “tillage muck,” it fetches about forty-seven shillings a ton. In a yard adjoining Raven's wharf, which, though a mile from the town of Dewsbury, and the road to it extremely hilly, is the usual place of shipment, I saw a large heap of this compost which very much resembled,—“*horresco referens*,”—“I have a crawling sensation as I write,”—the

stuffing I have occasionally seen, nay, slept upon, in inferior mattresses. Workmen were at the time employed in lading a cargo of these bales ; these, as well as the compost that lay in bulk in the yard, were then heating most violently. Impressed, on account of the vessel, with an apprehension of fire, for never did I see goods put on board in such a state, I asked the man at the crane whether he did not think there was danger. After looking at me for some seconds with attention, his reply was at least emphatic,—“ I like, Sir,” said he, “ to see ’em sweat.”

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CHAPTER XI.

WALTON HALL, YORKSHIRE.

Approach to Walton Hall—Hall and Staircase—Crocodile—Rattlesnake—Wourali Poison—Nondescript—Mr. Waterton—A Breakfast with the Wanderer—A pet Owl—A Ramble through the Grounds—A new way of treating an Old Tree—Wooden Pheasants—Conversation on Serpents—Anecdotes.

HAVING heard, when at an inn at Wakefield, that strangers were freely admitted to inspect the collection of birds, beasts, and reptiles at Walton Hall three miles distant, the residence of Mr. Waterton; and that, while full permission was granted to those who applied, arrangements were at the same time made to protect the family from interruption—I hired a horse and rode thither.

Although not partial to what is usually termed a “show place,” the proposed bill of fare was suited to my fancy. The objects of natural history in the collection not only being, it was said, arranged in a very peculiar style, but the disposition of the house and grounds altogether in accordance with the eccentric taste of the owner.

The Watertons are an ancient family in Yorkshire. Whatever may have been their early amphibious tastes or habits, at the present day the otter is identified with the armorial bearings; and not only the crest is an otter, and the name Waterton, but the mansion is situated on an island surrounded by a moat. Adherents to the Catholic

faith, heavy sequestrations at the time of the Reformation were levied against them ; a part of Methley Park estate, particularly, was once among their lost possessions. They claim relationship with the renowned Sir Thomas More, whose last female descendant married a Waterton. The family mansion still occupies its original site, but the ancient building was replaced by the present more modern edifice, by the grandfather of the present owner.

I soon found that Mr. Waterton was known by all the neighbourhood ; every one seemed to take satisfaction in pointing out the road ; even the little children no sooner heard the inquiry, than they held out their arms with a smile in the line of direction. I was desired first to turn out of the main road on the left, and then go through the village of Walton, on the other side of which, not far removed, stood the park gate. On passing through the gate in question, a lofty meadow-gate of ordinary construction, I rode along a bridle-path, across some large pastures, to the park wall. These fields were in excellent order, well stocked with fat horned cattle, and ornamented with a row of young and thriving elm trees. At the outside of the park wall the Barnsley Canal stretches for a considerable distance in a parallel direction : this canal I crossed by a small bridge, and knocked at the gate of the lodge, which was immediately opened by an aged porter. It is not many years since Mr. Waterton built this wall, which now encloses the whole of his park : the former varying in height in different parts from nine to nineteen feet. Although the park is not more than two hundred and sixty acres, yet, as the ground rises from the middle on every side in natu-

ral undulations, is well stocked with timber, and encompassed within by a broad belt of plantation, the effect is precisely the same as if it were of ten times the area;—whichever way the eye ranges, the prospect is limited on the horizon by the waving tops of trees. The house, with stables and farm-yard separate, is a good specimen of an English gentleman's mansion: the island on which the former stands is in extent one acre; and a fine lake, nearly contiguous to the island, contains twenty-four acres of water.

Considering I was a stranger to the owner, impelled to enter his domain by mere curiosity, I could not help feeling as if intruding on his privacy, when, having tied up my horse, I entered the lawn by an invisible wire fence, and made my way to the drawbridge, from which a straight paved walk led to the drawing-room windows. However, it was now too late to stand upon ceremonies, so, as the windows, which were cut down to the ground, were wide open, and an excellent fire appeared blazing in the grate, I walked straight forward and entered a room elegantly furnished;—besides handsome pictures, with which the walls were ornamented, articles of *bijouterie* were tastily arranged on the tables; the general decorations well chosen, everything in its proper place, and the whole in first-rate aristocratic order.

A servant, in a well-appointed undress livery, at this moment entered the room, and conducted me, apparently as a matter of course, to a roomy, old-fashioned hall, from which the staircase, of ample dimensions, leads to the upper part of the house. The staircase was one of those ancient models where

each flight of steps is divided from the next by a large square landing-place; so that, in fact, it might fairly be termed a gallery, with pictures arranged upon the wall all the way to the top, and the birds and animals disposed in order, in glass cases, on the right hand and on the left, in attitudes and positions calculated to exhibit them to the very best advantage. The servant, having ascended to the first landing-place, prepared to leave me to examine the collection alone, and at my leisure, and put into my hand a printed catalogue of the exhibition, as well as a copy of 'The Wanderings.' During the short conversation I had with this person, I learnt that he had lived a long time with his present master, and had accompanied him in his excursions abroad: he however remained with me only a few moments, when, taking his leave in a well-bred, quiet manner, he actually withdrew.

Thus far, as a stranger, I was certainly treated with most unusual hospitality; and as for the servant, whether or not he had learnt to be polite during his sylvan peregrinations it was of no moment, but for his part, had he spent all his days in the metropolis, he could not have done the honours better. The admission of strangers is a matter of every-day practice at Walton Hall; the mansion is, in fact, open to the public at large—no one is denied, although people of all ranks and conditions make continual application. Many days in the week gaudy equipages are seen waiting at the gate, while individuals of humble grade are ushered up stairs in a manner more congenial to their habits, though with equal consideration, by way of the kitchen. To grant such privileges it

must be allowed is kind and neighbourly ; and, moreover, leave is given to fish in the lake adjoining the house, to those who think it worth while to make application.

I found much satisfaction in referring to the catalogue given me by the servant, for it not only contained the name of the bird or animal according to its particular number, but the reader was also referred, for further particulars, to the precise page in the 'Wanderings,' wherein some anecdote relating to the same was recorded,—a species of well-timed information, by which the interest was greatly enhanced. With regard to an exhibition such as the present, wherein the owner's adventures are part and parcel with the creatures exhibited, to refresh the memory by a recurrence to the narrative is doubly useful ; but the same plan, nevertheless, might be adopted in museums, and general collections of objects of natural history, with advantage ; a trifling appendage to a catalogue, referring to works of authority, or containing short extracts from the same, would afford the visiter the ready means of identifying with the object present its habits in its native wilds.

In a commanding position, with a lowering countenance, and an eye as horridly frowning as I ever beheld, stands extended at full length the renowned crocodile, sufficient in his own person to recall to the mind of the spectator that gallant equestrian feat which brought before the notice of the world the latter part of his history ; and among the collection of pictures, one, immediately above the animal, an oil painting represents the beast, his rider, together with his attendants, the two former correct

likenesses, all performing their respective parts in the representation alluded to. This is the original of a caricature, which may be seen in many shop-windows, representing the author of the ' Wanderings ' seated on the back of the crocodile, and some half-dozen of black fellows tugging at the jaws of the latter by a rope.

Every body is acquainted with the story of the crocodile, and some have been inclined to wonder at the particulars, but the narration, although evidently of a man of eager temperament, contains, nevertheless, nothing, from beginning to end, that can be called improbable, or inconsistent with the feelings of an athletic lover of sport and a traveller. The wisdom of one man is raised by heavy machinery; the spirits of another are elevated by a more mercurial process; and such is the difference between both, that either may be totally at a loss to reconcile the tastes and habits of the other to plain reason: neither is it easy to imagine a rational creature submitting to voluntary exile and hardships, suffering hunger and thirst, and even braving peril and death in pursuit of objects for which an individual himself entertains not a grain of interest. The mere matter of fact in question is so extremely simple—so obvious in its relation to cause and effect, and akin to the moral and physical qualifications of the person concerned, that the shortest possible acquaintance, even a passing glance at his frame and manners, are sufficient, even if doubt on the subject did exist, immediately to dispel it. That he did ride the crocodile, precisely in the manner he says he did, I have no manner of doubt whatever; for, in fact, what was to hinder him? The beast

had gorged his bait, and six or seven men were hauling at a long rope and iron hook, the latter made fast in his entrails ;—in such a predicament on he was forced to go, no thanks to him : kick he could not, nor was it altogether convenient to turn round to bite. The plain tale goes no farther than to say, that the animal, being in this helpless state, and so perfectly secured by trammels as to be deprived of all manner of power,—he whose hopes and anxieties had been tantalized for three whole days and nights in the endeavour to catch him, now, in the moment of exultation, at the heel of the hunt, he, a Leicester fox-hunter, put an end to the chase by leaping on his back, and bestriding the scaly monster. So far from being an incredible event, it really seems to me just the very thing it was natural a person "*feras consumere natus*" was likely to do : a farmer's boy risks more danger when he rides a pig ; and had Mr. Elmore, the horse-dealer, then been present, nothing is more certain than that, had the author of the '*Wanderings*' hesitated to throw a leg over the "*cayman*," the former would, off-hand, have exclaimed, *non insolitis verbis*—"Get on, Sir, get on, he's perfectly quiet : a child might ride him."

A reference to the catalogue brought to recollection the incident of the little black bird, with a white spot on his crown ; in the pursuit of which the traveller, allured by a sound, incautiously mistaken for the monotonous chirrup of a grasshopper, was luckily convinced of his mistake by the vibratory motion of the tail of a rattlesnake among the grass. The little black bird now occupies a glass case in a conspicuous part of the staircase : in another case, immediately

below him, is the jaw-bone extended, so as to display the fangs in high perfection,—such is the will of Providence,—of the identical rattlesnake.

Hard by was an ant-bear; his toes turned in and his flourishing stern high in the air like that of a war-horse.

Also a sloth, which animal reverses the laws of nature and gravity, its entire weight while sleeping being suspended by its claws from an overhanging bough.

A more brilliant Indian cap and plume, composed entirely of feathers, I never remember to have seen, than one in this collection; besides which, a further memorial of the travelling companionship and habits of the owner was exhibited, in a quantity of the Wourali poison. The latter, a black pitchy substance, hard and dry, having three or four wooden skewers fast sticking in it, was preserved in a cocoa-nut shell. When introduced by the point of an arrow into the system, it produces instant death by paralyzing the circulation, yet does not render the flesh of the wounded animal unfit to be eaten. It seems extraordinary; that although scientific experiments on the effect and nature of this poison were made when first brought to England, further speculation on the subject has entirely ceased: for surely its powerful agency on animal life, and particularly on the circulation, might, applied in diminished proportion, be efficacious in medicine. I saw the identical ass, upon which the experiment was made in London, upwards of twenty years ago; after being to all appearance quite dead, it was restored to life by inflating its lungs. The animal was in good health and spirits, having remained at Walton

Hall, a pensioner for life, ever since the aforesaid operation.

But above all curiosities, the one I viewed with the most interest was, the stuffed nondescript, whose portrait is given to the world in the frontispiece of the 'Wanderings.' The features in the print, as may be recollected, rather than of a monkey, appear those of some placid, respectable old gentleman; and they are, as I can testify, accurately represented as one pea is by its fellow, the thick, bushy head of hair of the original being of a reddish brown.

The history of this wonderful animal, whether ourang outang, wild man of the woods, chimpanzee, or what not, is, according to the account of him given in the book, involved in some obscurity; it probably being purposely intended that the scientific reader should draw his own conclusions. At the end of the work, and in reference to the appended treatise on the art of stuffing and preserving birds and animals, it may be remembered that the possibility of changing or retaining, at the will of the artist, the expression of the eye and features of the animal under preparation is strongly insisted on; therefore, perhaps, this specimen is meant for a display of skill of the artist, whereby these monkey features, moulded into human form, tell their own tale, and remain, among the other numerous preparations, all the work of his own hand, a specific challenge as a preparation to adepts in the art, or to naturalists as an animal, to declare its pedigree. From Mr. Waterton, with whom I had afterwards some conversation on the subject, I could elicit no information; to every interrogatory relating to this

strangely human-looking being he smiled, and was silent. "Surely," said I at length, "it could hardly have been in cold blood that you put to death such a reverend personage?"—"Suppose," replied he, at last, being hard pressed, and pointing with his thumb to a glass case adjoining, "the other fellow were his brother!" This "other fellow" was a pure dog-faced baboon, but of which the black, leathery skin, eyes, and profuse quantity of red hair on the head, exactly resembled those of the former.

I had remained a long time alone on the staircase, a stranger to the owner of the mansion, yet permitted, with a liberal confidence, to remain unattended amidst objects collected at great pains and cost, and in no small degree liable to damage from heedlessness or accident; not a soul had I seen within the walls but the servant who had conducted me hither; and although it was easy, at a single glance, to perceive that the interior of the house was in excellent order, I saw no visible token of the superintending authorities, any more than had I been in a fairy castle.

At last, the summer's evening drawing to a close, I determined to take my departure, and on my way to my horse was passing through the drawing-room, when just as I entered the door, the host, attended by two ladies, his sisters-in-law, and a little boy, his son, six or seven years old, all stepped in at the window. The party were making their way by a side door into another apartment; when seeing a tall, straight-limbed, athletic person, his hair sprinkled with grey, and cut short, dressed in easy loose-fitting costume, viz., a drugget pea-jacket, and wide trowsers; and knowing him intuitively to be

the governor, although by no means certain of my reception, I could not reconcile to my conscience to bow and walk away; so I stepped up to him, and briefly expressed my thanks for the great indulgence that I felt had been shown me, as well as for the entertainment afforded by the collection. Nothing could be more cordial and frank than the invitation that, after only a few minutes' acquaintance, I received to breakfast at Walton Hall at eight o'clock the next morning; the which, for the sake of the place itself, would have been a sufficient inducement, even had I not felt a greater interest as to the owner. I therefore availed myself of the present advantageous opportunity of forwarding my objects both in one way and the other. And, having returned and passed the night at my inn at Wakefield, at eight o'clock the next morning, or rather, a few minutes before, I walked into the breakfast parlour at Walton Hall.

When I arrived, the family had already assembled; that is to say, Mr. Waterton, the two ladies, and the little boy.

I really may say, with great truth, that I never sat down to a better appointed breakfast table; whether determinable by the decorations, the quality of the coffee, or the interior of the pigeon pie; at all events, the whole together led instinctively to the aforesaid verdict. After a substantial refreshment, Mr. Waterton made that proposal, which of all others I was most anxious to hear, namely, a walk round the park and grounds; and it was moreover no sooner hinted than carried into execution.

There is no service usually more tedious and tantalising, to one whose thoughts and cares, for

the time being, are of a light description, than the heavy operation of dragging a country gentleman the first two miles from his home in a morning; whether to walk, to shoot, or what not. So many matters are to be previously attended to, all of lesser importance to the guest than to the owner,—so many orders to be given to the agricultural servants,—so many people respectfully waiting in the distance with hats off, to claim a magisterial audience,—that really one cannot help doubly appreciating the value of liberty, when the rich man thus seems chained, as it were, to the rock of his wealth, with vulture after vulture plucking at his liver.

But there was nothing like this at Walton Hall, and away we walked, straight from the doors, without a soul to interrupt us. The habits of the owner are active and early; to think and to act being with him synonymous terms, nothing once thought of remains to be done,—besides, we were, above all things, in a park surrounded by a high stone wall.

We left the island by the drawbridge before mentioned; there is no other access to the house; and this being slightly built, is not sufficiently strong for the transport of heavy articles of home consumption, such as coal, &c. All such, therefore, are ferried across the moat in a small vessel kept for the purpose.

Within the moat, close to the bridge, stands an ivy-clad battlement, all that remains of the ancient wall that in former times surrounded the island. The original gate is still preserved, of massive oak; and here a bullet is to be seen, deeply embedded in the wood, said to have been shot from a pistol by

the hand of Cromwell himself, on being refused admittance, when, at the head of a squadron of cavalry, he called upon the ancestor of Waterton to surrender.

In the midst of the ivy, and partially hidden by its leaves, is a plain wooden cross; in such a situation this sacred symbol has a striking effect, for while it testifies the firm adherence of the owner to his ancient faith, it is not less calculated to excite in the bosom of a stranger a confidence in his hospitality.

After examining the aforesaid gate, many centuries old, as appears by its model, as well as the massive fragment of the original wall, sufficient in its state of preservation, and in its dimensions, to serve as a sample of what the whole had been in former days, I was proceeding to walk on, when "Stop" said my host, and, at the same time taking a small stick out of my hand, he inflicted a few gentle taps on the ivy above. "Not at home," said he, returning me the stick. A pet owl, as I afterwards learnt, had here established his residence;—his usual habits being to mouse by night and slumber by day, the above signal was intended to request him to make his appearance; on the present occasion, whether he happened to be sound asleep, absent on business, or troubled with indigestion, I never discovered; at all events, he disregarded the invitation.

Near this spot was a circular pillar of stone, perforated all round with small apertures, after the fashion of those in a pigeon-house, the object being to afford an habitation for starlings: in the same pillar, other holes of still smaller dimensions were likewise bored in order, the latter for tom-tits. In

neither case did justice appear to be rendered by the birds to the intentions of the architect, their capricious fancy not being always determinable by human sagacity and observation.

On the lawn, before crossing the moat, stood an extraordinary sun-dial, or, more properly speaking, a cluster of sun-dials, for it consisted of an icosahedron, on each of whose twenty sides was a separate dial; all the twenty gnomons being parallel with its poles.

The feathered inhabitants of Walton Park enjoy the peculiar privilege of never being disturbed by the sound of a gun, or annoyed by the smell of gunpowder, let them increase and multiply as they may. Mr. Waterton never allows a gun to be fired within the walls; he exerts a similar degree of forbearance also with regard to vermin, neither making use of traps, nor taking other means to destroy them: his theory is rather singular, for he contends that more game is lost in a year by disturbing the covers in the pursuit of crows, hawks, magpies, and the like, than these birds of prey, if entirely left to themselves, would kill and eat. At the same time, when I asked how he accounted for the total disappearance of late years of the large fork-tailed kite from many counties in England, he attributed the fact entirely to the vigilance of the gamekeepers; the above bird being, as he said, by its nature, more easily taken in a trap than others of the hawk species. The extirpation system, or the preservation system, have the merit, like most other systems, of being directly opposed to each other; as to the question which of the two may be most expedient to put in practice for the destruction of vermin, it

is very certain that, as regards the accomplishment of the object, it is much easier said than done: our ancestors certainly succeeded in destroying the wolves in England, but they bequeathed to their posterity by far the more difficult task of the two, namely, to kill the weasels. Not all the accumulated sagacity of ages, with the aid of every description of trap and gun, has yet accomplished this desirable end.

Every living creature within the domain, as may readily be believed, instinctively testifies, by an unusual degree of tameness, that promptitude with which the animal tribe hasten to repose on the protection of man the moment he ceases to be their enemy; even herons are seen floating in the air in circles far within their accustomed circumference; and as for wild fowl, the large lake before mentioned teems with numerous flocks of every description. This piece of water is particularly adapted for the habitation of aquatic birds, presenting, in the first place, a wide open area, and converging at the extremity into a narrow gullet, where abundance of rushes, together with a low scrubby jungle, afford them a retreat, than which not even the wildest country in the world can furnish one better suited to their natures.

The wild ducks, of which there are here a sufficient number, even during the summer season, pass their existence, as is usual, between activity and repose; but when accidentally disturbed, instead of seeking, scared and terrified, other quarters, they merely take a few turns roundabout on the wing, and then drop again peaceably into the water. Alliances with the domestic birds in the farm-yard

are to be traced in the plumage of several half-bred ducks, among the flocks; these, nevertheless, vie in rapidity of wing with the purely wild ones; both sorts perform their evening flights together, and not unfrequently those half-bred depart with the rest on their long summer excursions to the colder regions of Lapland or elsewhere; making their appearance again all together at the beginning of winter.

Mr. Waterton takes special delight in studying the habits, and attending to the motions and conversations, of his feathered visitants; sometimes regarding them, while engaged in their natural occupation, through a powerful telescope from his drawing-room windows; and at other times observing their movements from various points of ambush on the banks of the lake. To aid the latter recreation, a well-grown wood extends for a considerable distance along the water's edge.

We were walking through this wood, when Mr. Waterton, making a sudden turn towards the water, beckoned me to a spot where stood an ancient oak, hollow with age, and covered with ivy. In the hollow part a bench had been introduced, which latter formed a comfortable seat; and as it afforded a view of the lake, partially intercepted by bushes and thick boughs of trees, it was occasionally used as one of the points of ambush before alluded to. Here we sat for some time looking at the birds, during which period I may safely affirm that I never beheld, even in a savage country, wild fowl more at their ease, or more thoroughly in a state of nature; for, in point of fact, they dabbled and sported about quite as independently, and with as little concern, as if the

race of man were blotted out of creation. When we came out of the tree, I was asked what I thought of it? I replied, just as I thought, that it was a noble old tree, and a remarkably fine object. I was then made acquainted with its history. This tree had only existed, or rather stood, in its present position, during the last six years. Its original situation being one wherein its massive trunk and bold outline were entirely lost to the surrounding landscape, it was accordingly carefully taken down by a horizontal cut close to the ground, placed upon a timber-tug, and, by the aid of several horses, conveyed to this new spot. Here, placed upright ingeniously upon a solid stone foundation, the ivy, at the same time planted around it, has since grown up and become so luxuriant, that the venerable exile may fairly be expected to maintain the pseudo honours of antiquity for at least another generation.

As we were pursuing our walk through this wood I looked up, and perceiving a pheasant sitting on a bough, at the same moment I instinctively pointed it out to Mr. Waterton;—the branches were thick about the place where he sat, so that the light hardly fell directly on the spot; nevertheless, the outline was so perfect, that an experienced eye could not possibly make a mistake. I was therefore not a little surprised when, to my discovery, a smile was the only reply. Looking again, I persisted; and a pheasant it certainly was,—that is to say, an effigy cut in wood for the purpose of deceiving the poachers. No less than two hundred and forty of these wooden pheasants are perched on the trees in different parts of these woods, which *ruse de guerre* had been successfully resorted to, in consequence of former depre-

dations. I afterwards saw a great many more, all so perfect in shape and attitude, the tail drooping downwards as if the bird were fast asleep, that, as they were all painted black, it would have been quite impossible, by moonlight, when all dark colours become blended into the same hue, to distinguish the wooden birds from live ones. Besides the above contrivance, there are other arrangements in Walton Park for the reception of poachers,—namely, several small stone buildings, disposed in various places like circular sentry-boxes, which not only form a comfortable guard-room, large enough to accommodate three or four keepers together, but afford a most excellent point of resistance in case of attack.

In the course of our walk we talked about serpents. I mentioned an instance of a *boa constrictor* I had once seen exhibited at Dublin. The creature had just swallowed a rabbit when I perceived that he suddenly turned his eye full towards me. I was looking over the edge of his box, so I took the hint and withdrew instantly. The animal, at the same moment, made his spring, and seized a mouthful of his own blanket, on the identical spot where, immediately before, I had rested my face;—and he retained the blanket so determinedly within his jaws, that it required the united force of a couple of men for five minutes to remove it. Mr. Waterton observed, that the serpent could not, even had he been inclined, have relinquished his hold, and as at the same time he produced the skull of one of these reptiles, it was plain to see, from the acute angle which the fangs form with the jaw, that their prey has no chance of escape. He added, that they never seize

their victim openly, or go out of their way in pursuit ; on the contrary, they invariably lie in wait,—being, however, seldom backward in resenting an act of aggression on themselves.

As an instance of this trait in the character of the boa, Mr. Waterton related an anecdote.

A boa, in South America, pursued to the banks of a muddy river, had eluded his sight. He had some time fruitlessly continued the pursuit, till at last, walking along, and stepping across, on some fallen logs, close to the shore, he suddenly perceived the track of the snake making progress beneath the mud ; and immediately aimed a blow with a spear he held in his hand, but missed him. The boa instantaneously returned the compliment, by seizing, quick as thought, a large mouthful of his trowsers, and flinging at the same time a couple of coils round his arm, with such violence, as to benumb the limb for some time afterwards. Although assistance was at hand, and the serpent a small one, it was with considerable difficulty, and not till the reptile had been deprived of life, that he relinquished his hold.

Thus the morning slipped away at Walton Hall ; when, having returned to the house at one o'clock, and partaken of the family dinner at that hour,—during which meal (either then, or at any other time) Mr. W. drinks no wine or fermented liquor,—I mounted my horse and returned to Wakefield, pressed by the most earnest hospitality to repeat my visit, and obtaining an ample store of agreeable meditations engendered by the excursion.

CHAPTER XII.

LEEDS.

The Old Coal Staiths—Curious old Steam-Engine—Crown Point and Waterloo Coal Staiths—Bramley Fall Stone Quarries—Wodehouse Quarries—Cloth Hall—Quick dealing—Sawing Stone by Steam—Engine for chopping Sausages—Grinding the Grinder—Cloth Mill—Water heated by Steam—Worsted Spinning—Wool combed by Steam—Manufactory of Machinery—Self-acting Turning-Lathe — Manufactories — Consequent Reflections — Morbid Sympathy of the Public—Actual State of the Operatives—Advance of Intellect coincident with improvement of Machinery—Operatives necessarily dependent on the Masters—Education.

In no manufacturing town in England, I imagine, is more coal consumed, in proportion to its extent, than Leeds: situated in the heart of a coal-field, and fed by an abundant daily supply, a single glance, whether by night or by day, verifies the above conclusion. The sun himself, obscured by smoke, as by a natural mist, no sooner descends below the horizon, than streams of brilliant gas burst forth from thousands of illuminated windows.

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The Old Coal-Staiths form one principal point of delivery of the coal brought from the pits, four miles westward, to the town. The entrance to the first of these pits, at Middleton, is by a level on the side of the hill, wherein it is only necessary to enter a few yards in order to see a perfect vein of coal.

The staiths consist of a platform raised upon a row of brick arches, each having an aperture in the

summit, so that the cart being brought underneath, in order to receive its load, the coal is at once shot into it from the waggon above. As, from the lower level, all the arches are accessible at the same time, several waggons may be unladen together,—any part of a waggon-load may also be delivered by means of a regulating bar, by which the bottom of the waggon is closed or opened at will.

The railroad and locomotive steam-engines are curious and worthy of observation, being among the earliest in the country; the latter especially is as different in appearance from the engines in present use, as a state-coach in the days of Queen Anne from any of our modern vehicles. A wheel on one side of the engine works upon a line of cogs, with which the rails on the same side are furnished; thus, though by a slow motion, gaining a purchase by rack and pinion. This crazy, rickety, old engine continues to trundle along day after day at the rate of about five miles an hour; an extraordinary instance, by comparison, of the improvements in machinery of the last fifteen or sixteen years.

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Considerable cargoes of coal are brought from the eastern vicinity of the town by the river Aire; of these there are two points of delivery, “The Crown Point” and “Waterloo Staiths,” both adjoining the river. I was surprised to find the appliances for unlading the vessels not altogether such as one might have expected, considering the enormous consumption of the article; thence may probably be inferred that, in addition to the abundance of the supply, and the natural facilities of delivery, the inhabitants of Leeds have other more important

matters to attend to. At the Crown Point Staiths, the coal is raised upon the wharf, seven or eight feet above the level of the river, by a simple hand-crane, worked by a couple of men at a windlass, it having been previously thrown from the lighter into an iron tub by men with shovels, which tub is raised, swung round over the cart to be laden, and emptied into it. At the Waterloo Staiths, the lighters, instead of bringing the coal in bulk, are furnished with iron tubs like the keels of Sunderland. A lighter carries eighteen of these tubs, each of the latter containing 36 cwt. of coal, or one cart-load. A small steam-engine is employed to raise the tub from the lighter to the wharf, a man at the same time hanging on at the side of it, in order to knock out the bolt which confines the bottom, and thus let the coal fall into the cart. In case of an insufficient demand for the cargoes of the lighters, the tubs are unladen from the latter, and wheeled on a small hand-truck to the raised platform which forms the staiths. Here they remain, arranged in order, till the contents are called for.

Coal in abundance arrives also daily from the south, in the neighbourhood of Wakefield, brought in ordinary carts along the turnpike-road. Besides the channels already cited, another has lately been opened by the Selby Railroad, in consequence of which undertaking, and the facility of delivery resulting from it, new staiths have been constructed within the premises of that establishment, and new shafts have already been sunk on the line, which latter will, ere long, contribute largely to the general stock.

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The supply of building-stone in the vicinity of Leeds is no less abundant than that of coal. The banks of the Liverpool Canal especially are continually covered with the material in all various sizes and dimensions, such as large blocks, slabs for paving, as well as others of thinner dimensions, termed "grey slate," for roofing dwellings, &c.; the whole lying ready for embarkation and export from hence to almost all parts of the country. The navigation to Liverpool by this canal is performed in about a week by the ordinary craft; the fly-boats occupy two days and three nights; the distance by water is one hundred and twenty miles; the number of locks ninety-two. By the Aire and Calder navigation towards the east, the port of Goole is reached in nine hours, whence vessels proceed onwards by the Humber to the coast.

I rode to the quarries at Bramley Fall, three miles from Leeds, on the south bank of the above canal; these occupy a slanting ridge of steep ground, covered with scrubby, stunted trees, the excavations being numerous, rather than large or deep. A specimen of the stone, which is of excellent quality, and is quarried with remarkable facility, crumbling, as it were, spontaneously, into large blocks, capable of being removed in their original shape without the trouble of blasting, may be seen in the balustrades of the new London bridge.

The workmen were raising a large block of eight tons by a crane and a couple of horses. At every round, a circumference of thirty yards was completed, while the stone ascended one foot. Notwithstanding its clumsy, irregular shape, no other

means were adopted to lift it than by the ordinary "Lewishole." By this apparently small purchase, merely an oblong mortice a few inches deep, in which, being larger at bottom than at the top, an iron pin is confined by a wedge, these heavy masses invariably hold together. The block when raised, suspended on the arm of the crane, above the verge of the quarry, was swung round with considerable adroitness on the part of the workmen, and laid upon the stiff wooden truck on solid wheels, on which it was conveyed to the masons below. The old horse that drew the truck was pushed backwards and forwards by the workmen, apparently with much heedlessness, sometimes even to the brink of the precipice; so near, that had he moved even one foot farther than the prescribed limit, both horse and carriage must have been inevitably precipitated to the bottom; but the animal had worked so long with the men, that a degree of mutual intelligence prevailed between both: in the mean time, the expression of his eye and ear showed he was aware of his danger; but whether or not, the men evidently reckoned on his intuitive knowledge.

The Wodehouse quarries, situated about a mile northward of the town, produce good sandstone. It is quarried easier, if possible, than that at Bramley Fall; not only lying naturally in horizontal layers, and splitting in a parallel direction by the slightest blow of the chisel, but from the alternations of temperature, or other causes, it cracks perpendicularly in deep fissures: in fact, the workmen have nothing to do but to raise the blocks from the quarry.

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Although the eye may be perfectly acquainted with an outline, it is not easy, without actual measurement, to describe space, when divided into different areas; for in such case, ideas, arithmetically definite, are not to be imported by mere correctness of terms. Such were my impressions on paying a visit to the Coloured Cloth Hall, on one of the mornings dedicated to the dispatch of business; for though the extent of the building is very remarkable, I know of no other elsewhere with which to place it in comparison. It rather resembles three sides of a square of houses, than a single edifice. A long room, gallery or street, as it is most properly called, extends from one end to the other of each side; and in these covered ways, the cloth brought from the adjacent country by the domestic weavers, in an unfinished state, is exposed for sale to the manufacturers, who finish it by machinery. Two rows of tables, one on each side, are ranged the whole length of the building: on these the bales of cloth are laid, a wide space remaining in the middle, whereon the purchasers parade up and down. Matters are conducted with remarkable celerity, and, as far as I could see, the first price offered generally adhered to. Few words go to a bargain;—the cloth is first held up to the light, whipped with a small bundle of blanchéd sticks, and smoothed down once or twice by the hand, then the price is registered in a little narrow book, and the purchaser strides forward in quest of a fresh article.

Here men of business may receive a useful lesson in the art of making up their minds in a hurry: for the regulations of the establishment make dispatch indispensable, and a short time only on two days in

a week is dedicated to the cloth sales. On the mornings of Tuesdays and Saturdays the commencement of the market is proclaimed by the sound of a bell at half-past eight o'clock in the morning. A few minutes before ten the same bell rings again, the latter being a signal to close the first part of the building, and commence on an upper floor. Twenty minutes is allowed here—the bell then rings a third time, and every body is hustled out.

As soon as the Coloured Cloth Hall is closed, that for white undyed cloth, situated in another part of the town, is then opened by a like signal.

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Within a building at the water's edge, close to the banks of the Leeds and Liverpool Canal, I saw a machine at work for the purpose of sawing blocks of stone. It was driven by a steam-engine, apparently of small power, although by it were set in motion upwards of three dozen saws. The block to be cut was placed in a frame and moved horizontally, stone, frame and all, backwards and forwards by castors on iron rails. The saws, the ordinary iron plates without teeth, such as are used in common by stone-masons, were fixed immoveably above the block. Four of these frames were within the building, each containing eleven saws, dividing each block into twelve paving stones. One boy attended all the saws with sand and water, adjusting at the same time, by a screw-purchase, their contact and pressure on the stone.

It was agreeable to see, in this instance above all others, the steam-engine substituted for human labour. Nothing can be less gratifying to the mind

than to watch the patient endurance and almost imperceptible progress of a mason employed in cutting through a large stone;—cast a glance on him as you pass, sitting in his comfortless sentry-box, the mighty mass before him, his toil seems incessant, and his attitude as if chained to the galleys. Pass on—ride, walk—wander ‘over the hills and far away,’—in three, or four, or five hours return to the same spot, and there appears the same man and the same stone; the former, poor fellow, enduring the labour of Sisyphus without its variety, or other relief from its monotony than merely to halt now and then for a few moments at a time, to regulate the nozzle of his watering-pot.

Even in the present instance, with the power of steam in action, although forty-four saws were moving together, the progress of each, as it made its way through the block, appeared no less tardy than if worked by hand.

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In a walk through the streets of Leeds, I witnessed the performance of a piece of machinery employed in an unexpected, if not unusual service—that of chopping sausages; nevertheless, the simplicity of the contrivance afforded fair grounds to consider why the same aid is not more generally applied to culinary purposes; moreover, I am by no means sure that such an instrument, on a small scale, might not be turned to the benefit of those who have lost their teeth—even entirely to supersede the knife and fork. One disadvantage is certainly to be complained of, namely, the grievous noise it makes while working; however, to this noise I am indebted for the opportunity of seeing it at all: for,

such was the rattling and thumping produced, that as I was passing on, my attention was arrested by a sound from the inner part of a butcher's shop, as loud as if half a dozen dragoons, with swords and cuirasses, were galloping round and round a boarded chamber; while the owner affirmed "the meat was chopped in pieces as fine as flour." Thus one great advantage is gained in sausage-making, wherein it may be advisable, not only to conceal the art, but the material also.

The machine was, in size and appearance, like a handmill, such as is used to break beans for horses, with a heavy fly-wheel, and worked by a single man at a winch. The meat to be chopped was placed in a round tub below, which tub turned round and round by a slow horizontal motion. Thus the position of the meat was continually shifted, under four heavy blades, which latter, as the wheels revolved, were lifted up, and allowed on their descent to fall with their full weight. I understood from the owner that it cost him thirty pounds. At all events, no six Leadenhall butchers could chop up an old cow against time in competition with it.

In order to ascertain the force required, I took hold of the handle and gave it a few turns: the movements were so easy, that, notwithstanding the clatter was unavoidable from the nature of its business, a child might have kept it in motion.

These implements are, I believe, at present common enough in London; at least, I am mistaken in the sound if one of them be not in constant work towards the south-west end of Oxford Street.

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With reference to the extreme facility, whereby

the powers of an engine are brought into action, and accumulated forces expended in some particular moment of contact, without affording to the observer any sensible indication of the resistance that has been overcome,—it would seem, that the greater the deed to be done, the less the noise and disturbance. And this, as it were, in analogy and contrast with the struggle to conquer of a determined heart, and the squabbling warfare of more grovelling minds.

The above reflection occurred to me on witnessing, within a celebrated manufactory of machinery, the attempt, while the more important operations within the chamber were performing in glibness and comparative silence, to reduce an old mis-shapen grindstone to its pristine circular form. As it revolved under an overpowering force, notwithstanding the softness of the material, the remonstrance of this *λαζας αναιδης*, this “radical grindstone,” was absolutely deafening. Although grown ancient in the cause of the levelling system, and protuberant in the exercise of grinding down its betters, yet the moment the experiment was retorted upon itself, it emitted cries as if an hundred hogs were under discipline;—meanwhile an innocuous flame of fire descended from the chisel, expending its venom in the water below, without even the power of raising ebullition.

Such impetuous rotatory motion imparted to a grindstone has been heretofore attended with a dangerous catastrophe. It was related to me on the banks of the Kendal and Lancaster Canal, where grindstones brought from the quarry in the neighbourhood, of all manner of sizes, like so many cheeses, lie arranged ready for embarkation, that in one particular instance a grindstone under manu-

facture being caused to revolve too violently, or containing perhaps a flaw, suddenly split in the middle, when one of the pieces flew off at a tangent, and forced its way through the roof of the building. Although I learnt thus much of the history of one part of the said grindstone, my informant, on whose veracity I altogether depend, omitted to state what became of the other.

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On making a circuit through the chambers of an extensive cloth manufactory, a stranger, as he is hurried along, feels, as it were, dragged from one object to the other, in unsated curiosity, compelled to leave behind, at every step, recollections on which the mind lingers, and relinquish every moment food for hours of contemplation.

First my attention was arrested by the carding machine, by which, aided by exquisite delicacy of sight and touch, the wool is previously prepared by hand. It is indeed beautiful to see the material, after being sorted, weighed in scales, and spread, weight for space, on a flat surface at one end ;—then pass over, between, and among, upwards of a score revolving, toothed cylinders, till it drops out at the other end, at regular periods, in soft rolls, one after another, the size and thickness of a walking cane, which rolls are brought end to end, and spun into the thread.

Next I traced the various means and multifarious devices by which the article under manufacture proceeds towards final perfection. Here the cloth, subjected to the powers of numerous and different machines, the wheels of which might, according to

appearance, vie with those of a chronometer, passes through the subsequent stages of improvement. In one place, irrigated by soft, equable, artificial showers of water, continually falling over its surface;—in another, exposed to perpetual contact with a cloud of vapour, raised for the purpose;—and thus, through twenty or more degrees of gradation and approximation, to the last finishing point. Then, indeed, it may be said to exhibit a specimen of human art, imitative in no small degree of Nature's works; worked up with such delicacy, and so saturated with oily particles, as, when the knap is raised, to partake of that property by which the covering of a living animal preserves its purity, and in a great measure resists the adherence of extraneous matter.

In this exclusive department, that of raising the knap, it is worthy of remark that the teazle-plant performs the office awarded to it from the earliest period, still unrivalled in its peculiarity of touch, and unequalled by any modern invention.

I observed in the dyeing-house the mode adopted of boiling liquid by steam, whereby vessels containing four hundred gallons were raised from a temperature of fifty degrees of Fahrenheit to that of boiling heat in a quarter of an hour. The steam entered from below through a pipe, five or six inches diameter, causing a violent commotion in the first moments of contact with the water, and producing a rattling, crackling, gurgling sound, both sonorous and awful.

Two steam-engines were employed in the service of these very extensive works, which form one establishment only, among others belonging to the same

proprietor: the building consists of a quadrangle, the front windows of one side of which alone amount to one hundred and sixty-four. After viewing the manufactory, I ascended by a flight of steps to the small stone building containing one of the said steam-engines. Although so vast a power was in action, not the slightest tremulous or other motion was perceptible; the enormous fly-wheel spinning meanwhile in silence, though weighing some tons, close to the wall; and the harmony of the movements of the engine altogether was so perfect and free from friction, the brilliancy of polish bestowed on many of its parts so lustrous, and the care and attention paid to the whole so apparent, that imagination might readily have transformed the edifice to a temple, dedicated by man, grateful for the stupendous power that moved within, to Him who built the universe.

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In a large worsted-spinning establishment I saw machines for combing the wool, consisting of wheels four or five feet in diameter, through the hollow radii and fellies of which heat was communicated by steam; their revolution was vertical, the teeth placed on the circumference, at right angles with the plane of the motion. I observed the vast power by which the water is squeezed out of the wool, after the latter is washed in a large vessel: this is done so effectually, that the wet wool, merely passed once between a pair of heavy iron cylinders, is rendered nearly dry. In addition to the weight of the upper cylinder, both are pressed together by a compound lever, one arm of which appeared to be about a

couple of feet in length, and was acted upon by a second of five feet or thereabouts; the weight at the extremity of the latter, two hundred pounds. The Continent chiefly furnishes the wool for broad-cloth, England that for the worsted manufacture, a longer thread being spun from the latter. The degree of fineness already attained in spinning worsted by machinery is such, that a pound of wool furnishes one hundred and twenty hanks, each hank containing five hundred and sixty yards in length,—equal to thirty-eight miles and two-eleventh parts.

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Among the numerous objects that attracted my notice in a manufactory of flax machinery was the self-acting turning-lathe. This machine was in the act of reducing to its proportions a hollow iron cylinder, four feet in length by three feet in diameter, and thickness three-quarters of an inch. As the cylinder revolved, the graver, or cutting tool, was fixed and adjusted to its proper point of contact and pressure, having, at the same time, a lateral motion imparted to it by a rack and pinion. The graver continually pared away a spiral thread of iron, a sixteenth of an inch in thickness, or thereabouts; the revolution of the cylinder being very slow, the lateral motion of the graver still slower, so much so, that the movements of the wheels that imparted it were hardly perceptible to the eye. By slowness of motion, the generation of heat is prevented, and consequently the application of oil, water, or other liquid, to refresh the cutting tool, rendered unnecessary. I was informed that a good tool would thus plane the whole cylinder, from end to end, without sharpening; the distance traversed

being, on a rough calculation, two thousand three hundred and four yards.

There is an appearance particularly graceful and majestic in the slow movement of this powerful engine, thus performing its office as an automaton, and almost in silence. It is visited at rare intervals, and then only for a moment at a time, by an individual who has this service, besides several other duties, to perform within the building.

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Although I had frequent opportunities, both in Leeds and elsewhere, of visiting the interior of several celebrated manufactories, I should feel unwilling to make to individuals what might be considered an ungracious return for their liberality, even did I consider myself qualified to describe to the world the movements of their machinery; nor could I reconcile to myself to publish the most trifling details whatever, in case such had been imparted to me under the slightest implied impression of confidence, or if, indeed, any reserve at all on the subject were, in fact, necessary. But there was neither concealment nor mystery on the part of those to whose kindness I am indebted for having been admitted as a stranger, and conducted off-hand and unreservedly all over their premises; moreover, I am no mechanic, neither versed in the operations of machinery,—not even acquainted with the vocabulary of the members that compose any description of engine. An uninterested spectator, and wishing well to all parties, I have no more to describe than what I saw in common with hundreds, nay thousands, of people connected with the works in question; nor, after all, have I attempted any

more than to trace, in general terms, the impressions received on my mind.

It is with a feeling of veneration that one enters a manufactory, such as the one last referred to,—namely, that for the manufacture of other machinery,—wherein each of the component parts is fashioned, of those machines whose operations, complicated as they may be, when a number are seen all working together in the same apartment, appear somewhat monotonous.

Here is a creation in miniature,—wherein variety knows no bounds, and the number and complexity of curious engines, constructed merely for the purpose of forming small parts of another, baffle all description.

It is most curious to observe the infinity of devices by which the velocity of revolving wheels is regulated, and every description of circular and rectilinear motion generated; how the revolutions are accelerated or retarded, merely by shifting the gear along the conical axle of the drum-wheel; how a straight rod, resting upon the plane periphery of an eccentric revolving wheel, receives and communicates a movement whether vertical or horizontal, equal, and at regular intervals,—such as, for instance, is necessary to produce the blow of a hammer; how a movement is also obtained, alike equal and at regular intervals, but by impulses longer continued, imparted by means of the traverse or reversing pinion, where a wheel or pinion, acting on both sides of a rack, by passing over the extremity along the opposite side, reverses the direction of the motion,—such as is exemplified, for instance, in the slow ascent and descent of the frame which

feeds the spindles in a cotton or worsted mill or the horizontal motion backwards and forwards of an ordinary mangle.

There can be no spectacle more grateful to the heart of an Englishman than, viewing the interior of a manufactory of machinery, to observe the features of each hard-working mechanic blackened by smoke, yet radiant with the light of intelligence,—to contrast with his humble station the lines of fervid thought that mark his countenance and direct his sinewy arm, and to reflect that to such combination of the powers of mind and body England owes her present state of commercial greatness. It is no less pleasing to consider, that although particular classes of men have suffered by the substitution of machinery for manual labour, such evils arise from the mutability of human affairs,—are such as the most zealous philanthropist cannot avert; and, lastly, of themselves insignificant compared with the general demand for labour throughout the country, which has not only kept pace with the increase of machinery, but no doubt might be shown even to have exceeded it;—nay, it might be made manifest, that not only is the grand total of operatives employed throughout the manufacturing districts augmented, but additional employment afforded in like proportion for mechanics, to supply the wear and tear of machinery, and buildings dependent thereupon, as well as for workmen upon all works to be traced to a similar cause, such as railroads, bridges, viaducts, aqueducts, &c.

Great have been the strides of the commercial interest, while the agricultural have comparatively remained still. In halls like these the growth of

science has been fostered, and England is no doubt indebted to the manufacturer, among other benefits conferred, for the simultaneous expansion of intellect that has spread of late years far and wide through the country. The public, nevertheless, have been slow to do justice to the character of the manufacturer, or appreciate the manifold difficulties of his position. Instead of regarding him as an individual on whom hundreds, nay, thousands of his fellow-creatures depend for their daily bread, expressions of morbid sympathy have, on the contrary, never ceased to paint the situation of the operatives far darker than it is in reality ; while there can be no doubt but that the well-being of both parties has been preserved through the struggle, not alone by the industry of the servant, but by the benevolence of the master. Benevolence, in England, as well as industry, is a leading virtue,—to exercise it at others' expense is a national failing ; as in the case of those, for instance, who, under the forms of various descriptions of associations and societies, undertake to direct the kindly feelings of individuals. This propensity (laudable in itself, and perhaps harmless, even though misapplied, so long as confined really to individuals), exerted in the way of special interference between different classes of persons, and especially between masters and their servants, then subverts the natural dependence whereby both mutually lean upon each other. It is as unquestionable that the operatives rely, over and above their daily wages, upon their masters, as that the benevolence of the latter can never flow so freely as through an open channel. Inasmuch as it is owing to the benevolence of individuals, with regard

to house servants, that multitudes of those whose 'service is no inheritance,' are preserved in sickness and old age, there is no reason to apprehend that similar unseen channels of sympathy, if left to themselves, would flow less abundantly towards the relief of the operatives among the manufacturing classes.

With respect to the general state of the workmen, and especially the children in the factories, I certainly gained, by personal inspection, a happy release from opinions previously entertained; neither could I acknowledge those resemblances, the work of interested artists, by whom such touching portraits of misery and over-fatigue have been from time to time embellished: I saw around me wherever I moved, on every side, a crowd of apparently happy beings, working in lofty well-ventilated buildings, with whom a comparison could no more in fairness be drawn with the solitary weaver plying his shuttle from morning to night in his close dusty den, than are the bustle and occupation of life with soul-destroying solitude. It is surprising after all to reflect, that notwithstanding human labour necessarily receives its limit according to the extent of human power, yet how few there are who are aware how great that power is. Extraordinary feats of exertion, from time to time heard of, serve to exhibit prodigies of strength displayed at particular times and places; nevertheless most people are totally ignorant how far voluntary labour, unrecorded and almost unnoticed, is daily urged. I remember one day at Liverpool, when walking on the Docks, stopping to observe the mode in which the labourers employed to carry sacks of oats from the adjoining

storehouses to a vessel lying at the water-side, conducted the operation. These men (chiefly Irishmen) received the full sacks as they were lowered by the crane off the hitch on their shoulders and carried them across the road. They pursued their heavy task during the working hours of a summer's day at a uniform, unremitting pace, a trot of at least five miles an hour, the distance from the vessel to the storehouse being full fifty yards; they were frequently obliged, moreover, to deviate from a straight line, in order to avoid the numerous carts and carriages that continually obstructed their course. Arrived on the edge of the wharf, they shot the sack into the hold of the vessel, after which, returning to the storehouse, and fixing the empty sack to the hitch at the end of the rope, they received in its place a full one. It was said that at this work a good labourer earned, at 16*d.* per 100 sacks, ten shillings a day; so that consequently he made seven hundred and fifty trips from the storehouse to the vessel, carrying for half the distance a full sack of oats on his shoulder, thus performing a distance of seventy-five thousand yards, or forty-three miles, nearly. All which, weight, distance, and impediments being considered, though a great performance, is one only of those numberless instances that somehow or other neither cause pity, nor engender that state of excitement and outcry, so congenial to the English character.

Inasmuch as during the course of late improvements in machinery thousands of the lower classes have been necessarily made conversant with the operations, and daily habit has continually encouraged and confirmed the love of knowledge and the spirit

of investigation, I think it follows that the march of intellect at least received from hence a powerful impulse, and that, at all events, it may be predicated as to the point at which the latter has now arrived,—that even supposing the mind of the public were suddenly to change, and instead of meditated schemes of education, compulsory and persuasive, an endeavour were made, on the contrary, to stop its progress,—the word “halt” would be uttered in vain.

With the same good intention that would fain heretofore have improved the condition of the factory children by special interference, in like manner there are many who would regulate education generally throughout the country, not only for the benefit of the lower classes, but even out of tender mercy towards the higher, from the apprehension that from this said march of intellect the lower classes may gain undue pre-eminence.

But it appears to me that the matter may very well be allowed to rest in the old hands, and that parents and guardians may safely, as usual, continue to direct the course of education, particularly as experience shows that the energies excited have been simultaneous instead of partial, and that all classes of society, not the lower classes exclusively, have been awakened by a sympathetic stimulus; for it might be shown that knowledge has shed light in equal proportion over the higher ranks, were only the numerous public lectures delivered continually, year after year, on every branch of science, and in every great town in the country, to be given as an example.

It may be a question for consideration, whether

or not the first process of all in mental cultivation,—that of clearing the soil of the weed of idle habit, and preparing it for the seed of instruction,—be properly attended to ; and whether that stupendous engine—the imitative faculty of a child—be made available to its utmost extent. I have often thought that, during the important season of reason's first development, those few years of existence when figures, sounds, colours, languages, fall on the understanding as the down on the wing of a butterfly, something more might be done under the peripatetic system of instruction than has been generally attempted ;—I say peripatetic, for the blessing of health is not only the first of all desiderata, but even learning itself is little worth without it. According to the present plan of many infant schools, a peripatetic system of instruction might, I think, be acted upon, to such extent at least as might not only afford instruction to children of all ranks, but render them at the same time more healthy and happy. At all events, there appears no rational objection to the institution of infant schools for the children of the rich as well as the poor ; were it only as a refuge from those solitary hours of idleness passed by the first-born of the higher classes within the walls of a nursery, wherein many an infant, while the mother is shopping and paying morning visits, untaught one useful lesson—that the world was made for others as well as itself, grows daily more confirmed in its propensity to self-will, and lays the foundation of sorrow and disappointment in after-age.

Our public schools, together with the present forms of education, taken with all their imperfec-

tions, certainly afford the means of attaining every requisite description of knowledge, provided the mind of the student be properly prepared, and he be willing to learn: but our public schools are not to be blamed if, on the contrary, he, having such advantages at command, and choosing to slumber away his hours on the banks of the stream without drinking its waters, should afterwards complain of thirst. Our present forms of education are not, by reason that they hold out the means of obtaining instruction, to be held amenable to their mal-appropriation. A certain period, no doubt, varying according to disposition and talent, is indispensable, under any particular course of study; to define this period it behoves those concerned to exercise their judgment; for it is as certain that things half learnt are never remembered, as that those thoroughly ingrafted in the mind are never forgotten. There is a time—a moment, perhaps—when the particles of knowledge descending on the memory are liable to be swept from its surface by the most trivial cause; yet, for that moment being suffered to remain, sink and amalgamate with its essence for ever. The imperfections in our forms of education are probably more attributable to the apathy of parents and guardians than to the system itself: for, though public schools may be said partly to lead the public taste, they hold always in due deference public opinion; the intelligible, definite expression of which, without special interference, will, no doubt, prove alone sufficient to instigate all necessary alterations.

The study of arithmetic and algebra might cer-

tainly be made a more primary object of interest than has been hitherto the practice. It was a trite adage when Horace was a boy,—

“ ——— ut pueris olim dant crustula blandi
Doctores, elementa velint ut discere prima,”

yet common custom rather tends to give a distaste to the science of numbers and quantities, than inspire the pupil with a sense of its beauty; as it is, the study is taken up altogether in a desultory way, and may rather be said, after a couple of hours' labour, to spoil a half-holiday, than to afford direct advantage. Under the present system a youth has scarcely shaken off the heavy machinery of primary rules, than he leaves school, and bids adieu to the subject for ever; and this, notwithstanding the accumulating rapidity with which difficulties disappear in proportion to progress. It is really absurd that since, even in the further stages, there is no mental exercise more painful, one which requires more fixed attention, or more tenacity of thought, than the mere primary, mechanical process of multiplication, the student should be thus propelled, as it were, through stormy weather, and then be obliged to abandon his course the moment the light of reason illuminates his track, and teaches him to adopt principles painfully acquired to easy practice. Provided arithmetic be made a part of education, the student should never stop short of algebra, of which, by any one versed in common arithmetic, a tolerable insight may be obtained in a few months. By it he not only becomes thoroughly master of theory, but arrives, as it were, in an element, where with every new object calculated to delight and surprise, he

breathes afresh, inhales new life, and reposes in peace, half-suffocated by the turbid waters of the immortal Cocker. A problem in algebra once arranged and commenced, no matter how frequent the interruptions, how sudden or long the interval, an hour, a day, a week afterwards, it is resumed and pursued, precisely with the same interest and the same facility as if no interruption at all had taken place. By the help of algebra, the student not only at once perceives the use of all his early labours, and views the general principles of arithmetic laid bare in surprising beauty; but obtains, moreover, a master-key, wherewith to advance at will, as fancy or interest in future days may lead, within the pale of mathematics.

There may be those among classical students who hold arithmetical studies in vile estimation—who consider them derogatory to the heir-apparent of large possessions, and condemn them as vulgar and low. Provided the fancy takes no turn that way, or in the case of imbibing an antipathy, there is no help for what is, after all, in some degree, a matter of taste; but as to any possible objections which can be raised by such a class of scholars, the following allegory appears to me to convey in few words a satisfactory reply.

Knickerbocker relates, in his History of New York, that in the early days of traffic between the aborigines and the Hollanders, the former were totally ignorant of the science of numbers; and that, although at the same time they had recourse to the use of scales, in their bargains for furs brought from the interior of the country, they were by no means conversant with the adjustment of weights. Here-

upon it was proposed by the Dutchman, merely to facilitate matters and for the sake of convenience, that his foot, placed in one scale, should reckon against five pounds of furs in the other; and upon this understanding they went on for a long time, without any other arrangement. Affairs, in consequence, it is said, always went well with the Dutchman, though somehow or other, by the perversity of fortune, it invariably fell out that the Indian remained poor.

Considering there are various modes by which the thing to be taught may be administered, and that it may be rendered more or less palatable to the taste of the student, I have often thought that the latter object might be somewhat promoted, and the course of instruction improved, merely by an alteration in the order of the rules; for instance, as relates to decimal fractions.

According to the present plan, a boy is led through all the primary rules before he is taught that a decreasing scale exists, to the right of the unit, precisely similar to that which increases to the left. As nothing can be more simple than the whole theory of decimal fractions, which operations are, in fact, the same as those in whole numbers, there is no reason why they should not be taught from the very beginning; which early insight would certainly tend to encourage reflection, at the expense of hardly any additional incumbrance on the mind.

Again,—the rule of three is universally learned by rote; a barrier at the beginning to the range of thought, beyond which the mind of a boy has no more scope than if he were taught to reckon with his fingers. It is administered after the manner

of a quack medicine, or a charm of unknown ingredients, to be swallowed without further inquiry, as if to suit all manner of purposes in life. This of the rule of three direct. As for the rule of three inverse, it may be, for aught many know to the contrary, the other rule set to music; while the double rule of three, being somewhat complicated and unintelligible, few are inclined to take it in hand.

Yet all these rules, the direct rule of three, the inverse rule of three, and the double rule of three, are, in fact, no rules at all, taken in a primary sense; but they are secondary rules, founded upon another rule, or elementary law of proportion, which latter rule or elementary law, is the simplest of the two.

It were surely better, therefore, since a sufficient demonstration is intelligible to any capacity, that a boy should either not be made acquainted with the rule of three at all, or that the principle, together with the rule, should be explained to him; and this principle lies, as it were, in a nut-shell, the elementary law alluded to being so generally known, that it is unnecessary to say where it is to be found;—whether it be known or not, it is as easy to understand and remember as the rule of three; it is simply as follows, namely,—that of four numbers being proportionals, the sum of the two middle terms multiplied together is equal to the sum of the two extremes multiplied together. As every possible question in the rule of three, whether direct or inverse, consists, when solved, of four proportional numbers; suppose it be taken for granted that the question is so solved, the said fourth number being represented by x . Thus—if 3 lbs. cost 9s., what will 5 lbs. cost? That is, as 3 is to 9, so is 5 to x ;

whatever number x may be. Here are four proportional numbers, and, as has been stated, it follows that 3 times x is equal to 9 times 5. Hence, x must be equal to a third part of 9 times 5; or, in other words, equal to 5 multiplied by 9, and divided by 3, which is the rule; for the fourth number, here represented by x , is found by multiplying the second and third numbers together, and dividing by the first, which was to be shown.

The above is but a partial demonstration of a common rule, by no means offered to the reader as a perfect illustration. Yet, while I am on the subject, a subject tending at least to promote reflection, and useful as far as regards the endeavour to render more palatable that which is undeservedly called a heavy science, another instance occurs to me, whereupon a very few lines regarding a rule in mensuration, also very generally known, may not altogether be thrown away.

The rule I allude to is that for determining the solid contents of the frustum of a pyramid; and is as follows: Add to the sum of both areas the square root of their product, which multiply by a third of the height. The same, put in an algebraical formula, taking the larger area as A , the smaller a , and the height h , stands thus:—

$$(A + \sqrt{Aa} + a) \times \frac{h}{3}.$$

This formula is applicable to various practical purposes; the figure of a pyramid and, *à fortiori*, a frustum thereof admitting of such infinite variety, according as the bases may be circles, plane rectilinear figures, or polygons of any description, and also according to the height or variation of the angle

at the apex : a common wine-glass, almost every description of vat, tank, or drinking vessel, a log of timber, round or square, a tapering column, a chimney, and various parts of buildings and ordinary objects, assimilate their solid contents to this rule. But I have only introduced it for the sake of its partial demonstration, and its conformity with the principles that direct the dimensions of the pyramid or cone, and those of the prism or cylinder ; conceiving that, with both the rule and its principles, every boy at school ought to be made acquainted. A perfect and neat algebraic demonstration is given in some of the books of arithmetic ; but I address myself solely to the plain arithmetical reader.

Everybody knows that the solid contents of a prism or cylinder are found by multiplying the area of the base by the altitude ; and secondly, that the solid contents of the pyramid or cone, whose base and height are equal to the base and height of the said prism or cylinder, amount to one-third thereof.

It is now necessary to premise what must of necessity be previously taken for granted ; namely, that any quantity multiplied by nothing amounts to nothing. Upon this point in arithmetic the demonstration rests, and this point is no paradox, but a fact intelligible to anybody. For, inasmuch as the product of any quantity is diminished, in proportion as the multiplier is greater or less, so of course, when the multiplier arrives at nothing, the product vanishes altogether.

Hence to prove the truth of the above formula for determining the solid contents of the frustum of a cone or pyramid, by applying the said formula to the entire figure,—it is evident that a frustum being

an indefinite term, may approximate infinitely near to the entire figure, of which it is a part, and still be a frustum so long as the lesser area be any quantity at all. Thence it follows that an entire pyramid may, in correct terms, be defined a frustum, whose lesser area is equal to nothing.

In the latter case the formula would stand thus :

$$(A + \sqrt{A \cdot 0} + 0) \times \frac{h}{3}$$

when the two latter terms within the brackets being multiplied by nought, it would be $A \times \frac{h}{3}$, which is the rule for the pyramid or cone.

In like manner, taking either the prism or cylinder, as a frustum whose areas are equal; and, reasoning as before, conversely, the said frustum may approximate indefinitely near the entire figure, so long as the smallest conceivable particle of difference remains between the two areas. The formula would then be

$$(A + \sqrt{A \cdot A} + A) \times \frac{h}{3} = 3 A \times \frac{h}{3},$$

or $A \times h$; which is the rule for the prism or cylinder.

The above observations have more for their object to point, as it were, in the direction, than mark the alterations that might be made with good effect were the subject of arithmetical studies treated with more consideration, to the end that the young mind, instead of being burthened with mere rules, should be rather instructed in the principles of their foundation : at the same time I trust it by no means follows that I propose, in the least degree, to hold

cheap the Latin and Greek classics,—quite the contrary; being fully impressed with the conviction that if time be judiciously employed, there is time for everything. Our public schools, so long as the tree be judged by its fruit, claim first rank among the seminaries of the world; and the English aristocracy, as regards classical attainments, are second to none; moreover, as the heirloom of the higher classes in every country is leisure, it naturally follows, that the classics must always form a more prominent part of their education than of the lower. By the mechanic, a partial proficiency in the dead languages would certainly be desirable, nor would a moderate proportion of pains towards the attainment be ill bestowed;—to many an inquiring mind, the barrier, that first presents itself on the approach towards any particular science, is its glossary; a barrier which, as it frequently causes all further attempt to be abandoned, may almost be called insurmountable: were even a partial summary of etymological terms of the sciences prepared and learned by rote as a part of the mechanic's education, while the memory were young and retentive, it would doubtless form a desirable and useful adjunct.

The Latin and Greek classics stand by far too deeply rooted in the minds of the great and good to be shaken "*arbitrio popularis auræ*;" and from their beauty and merit alone, must ever remain identified with the literature of modern nations:—on the mere ground of utility, as a branch of study, ten or twelve per cent. of the English words in any ordinary book are to be directly traced therefrom;

but surely the dead languages, instead of being taken merely for what they are worth, should be rather acknowledged and received by a civilized people, as the elements of living tongues, and the earliest record of human intelligence illustrative of the gift of speech.

CHAPTER XIII.

SELBY.

Railway to Leeds—Tunnel—Journey of the Train from Leeds to Selby—Excitement caused by the Spectacle—Mode of laying down Sleepers—Mode of lading Stone—Selby Church—Extraordinary Personage—An attentive Landlord—Packet-boat Regulations—A Voyage to Hull—Running aground—Remedial Measures—Hard and fast on a Mud-bank—Bad Navigation of the Humber.

THE completion of the Leeds and Selby railroad in 1834 has confirmed, beyond all manner of doubt, the reasonable hope of a continuation of the line entirely across the country, from sea to sea; and even at the present moment may be considered as forming, combined with that from Liverpool to Manchester, both together leading in the same direction, the longest in the kingdom: a railroad from Selby to Hull having been also determined on, which latter, there is every reason to believe will, ere a long period, be taken in hand, it follows, I think, as a matter of course, that energies sufficient to complete the diameter of the country over the intermediate space from Leeds to Manchester will not be wanting.

The Leeds and Selby railroad was begun and finished by the steady perseverance of a few individuals in the face of serious opposition and difficulties: whether it be that the inhabitants of Leeds possess other ample means of employing

both time and capital in their manufactures; or that the overpowering canal interest in that part of the country was united to frustrate the scheme, it certainly did not receive upon the whole the encouragement that might have been expected; and even to the very last, abundant were the exclamations and prophecies against the final issue of the speculation. The proprietors, notwithstanding, continued to make head-way against every obstacle, liberally relieved their contractor from a considerable additional expense incurred by filling up sundry shafts of abandoned coal-pits, unexpectedly encountered on the line; and completed the whole work in the most substantial manner, notwithstanding almost every yard of the rails are laid either upon an artificial raised causeway, higher or lower as the case may be, or along an excavation.

Abundant open space for the buildings of the establishment has been enclosed, at the station of departure from Leeds, where, besides the necessary offices and appurtenances, a complete set of staiths, both for lime and coal, have been erected. These are built on the plan of the old coal-staiths at Leeds, of which mention is made in another place; that is to say, with a raised platform for the carriages at the top, from which the coal is shot into a compartment below. In this compartment sufficient space has been provided, so that a cart may either be backed and receive its cargo as it falls, or several waggon-loads may be shot on the ground, and afterwards shovelled away at leisure. This set of staiths contain a double row of spouts, twenty-four on each side. Already, in consequence of the undertaking, new shafts for coal-pits have been sunk on the line

from Leeds to Selby, in prospect of the advantages to be obtained by the facilities of land-carriage.

The tunnel, with which the work commences at Leeds, is admirably executed; eight hundred yards long, of ample dimensions, sufficient to allow the locomotive engines to drag the trains of carriages after them in ordinary course both ways completely through, in at one end and out at the other, and well bricked and whitewashed above and on both sides. It is partially lighted by windows at the top of three shafts, which latter have been left open, at unequal distances. However, in passing through it, it must be confessed that, although no inconvenience is experienced by the smoke, a considerable part of the transit is performed in utter darkness.

Several arches, or viaducts, are thrown across the railroad on the way. One of these, Garforth Bridge, is in a slanting direction, according to the mode now frequently adopted in modern practice, whereby another road crossing the line, not at right angles, is continued straight forwards. Of these works, the most oblique is that of Rainhill Bridge, over the Liverpool Railroad, one of its abutments being I believe upwards of forty feet out of the square, that is to say, it is thrown that distance forward in front of the other. Of these arches when seen in the perspective, the eye traces the figure with no observable deviation; yet when the spectator views from underneath the symmetrical beauty of the curved lines above him, he becomes impressed with a feeling as if he were within the concavity of a stupendous shell.

Soon after the railway was opened, I made a journey from Leeds to Selby; I was conveyed from the

centre of the town to the station in an omnibus, one of the most prepossessing carriages of that description I remember to have met with ; that is to say, a well-finished vehicle, fitted up withinside with glazed pink lining, neatly plaited in festoons, a large looking-glass at the end for the benefit of ladies ; and, what was better than all,—carefully driven.

About a dozen carriages started in our train, and were dragged by the locomotive engine through the tunnel at the rate of twelve miles an hour, afterwards ascending the inclined plane, a rise of one foot in one hundred and eighty, with equal velocity. Three or four stoppages were made on the way to take up and set down short fares, nevertheless we performed the whole distance, nineteen miles seven furlongs, in one hour and four minutes.

The sensation created by our transit, at this early stage of affairs, was particularly striking. Had the double-tailed comet passed that way, the country-people would hardly have been more interested by the spectacle ; the men at work in the fields and quarries stood like statues, their pickaxes in their hands, in attitudes of fixed attention, and immoveable as if turned by the wand of a magician into blocks of stone ; and women in troops, in their best gowns and bonnets, fled from the villages, and congregated at the corner of every intersecting lane. Neither were the brute creation less animated on the occasion ;—on the Liverpool and Manchester line, the cattle, accustomed to such phenomena of sight and sound, become apathetic, and hardly lift their noses from the pasture, quietly minding their own business, in spite of roaring, whizzing, and smoking ;—here, on the contrary, every horse was on the alert, viewing the huge moving body as it ap-

proached with a mixture of fear and surprise, stamping, pointing forwards his ears, snorting, and evincing a degree of curiosity so intense, that it appeared as if to the instinctive faculty was added reason and the desire of knowledge:—even the cows, as they cocked and twisted their tails, spit out mouthfuls of unchewed grass, and tried to gallop.

Although the railway establishment at Selby is not so large as at Leeds, the buildings are commodious and well arranged, consisting of the booking-office, and, immediately contiguous, a spacious shed, the latter for the purpose of receiving under shelter the arriving and departing trains.

As at the time in question a part of the railroad in the vicinity of the booking-office was yet unfinished, I had an opportunity of observing the mode by which the workmen employed in laying down the sleepers conducted the operation. Each of these sleepers, a heavy block of stone, having a small cradle of iron, or chair as it is called, riveted on the top for the purpose of supporting the rails, must necessarily be placed with very great exactness in the same straight line and level, at the same time on a firm and perfect bed; yet the work was altogether performed by ordinary labourers, by the help of the following very simple contrivance. A strong upright piece of timber, about six feet high, rested on the ground. Across the top of this a scaffold pole, about fifteen feet long, rested on a pivot, so that the latter could traverse horizontally in every direction, being at the same time in equilibrio: that is to say, it was so balanced that, with the stone sleeper suspended at one end by a short chain, the length of the pole was unequally divided, so as to give the man at the opposite extremity full purchase and

power over the stone. Thus, one man, holding the stone in the air, by pressing the long end of the lever, his comrade adjusted the earth below it; it was then lowered by the former, and either pounded itself into its place by a motion given to the pole, or was again raised and its bed re-adjusted. Finally, the accuracy of its position was ascertained by a common mason's level.

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A vessel in the Ouse river, not more than a few yards from the shed and booking-office, was taking in a cargo of stone. It was now low water, and the river saturated with earthy particles, in as great abundance as the stream of the Nile. Block after block of stone was lifted from the ground, and swung on board, by an ordinary crane, with singular dexterity; and with equal celerity and ease the men adjusted and disengaged the tackle, as they placed the stone gently on board the vessel. With no other appliance than that of a common chain, they contrived to catch a grip at the sides, just as I should take a tea-canister in my hand, and lift it from a table. The chain had a hook at the end, and a ring in place of a link some feet from the hook. The hook was run through the ring, so as to make a noose, which noose was then thrown round the stone horizontally, as it lay on the ground. Drawn tight, the end of the chain passed vertically over the top of the stone, and the hook fastened to a link, opposite the point of juncture. As the men heaved at the crane, the noose jammed, and up went the stone in the air; so soon as the latter was lowered into the vessel, the noose was slackened, and in a moment quitted its hold.

The Church at Selby is of larger dimensions than is apparently conformable to the extent of the town ; the style nearly that of Rochester Cathedral. Within the building, those who delight to pace among the venerable tombs of abbots and knights templars have ample opportunity of being gratified ; these noble relics being frequent and in fine preservation. Unfortunately a very few minutes were allotted me for inspection, and, insufficient as they were, I should have missed the opportunity altogether, had not the door of the church been previously opened to introduce another party.

The person in charge of the keys, who acted as verger, was a strange-looking being ; such as, in ordinary life, one seldom meets with, though I could not then and there express with propriety my extreme curiosity to know his history.

This extraordinary personage was in size a dwarf ; in appearance both boyish and old. His head was peculiarly formed, and large in proportion to his body ; his face smooth and wrinkled, without the slightest vestige of a beard : his countenance also bore a marked character, and his cracked shrill voice resembled the voice of a woman. Indeed he afforded a remarkable contrast, in every point of resemblance, with the portly deep-mouthed brethren of his profession.

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Having passed the night at the George Inn at Selby, together with several passengers who had arrived from Leeds by the railway, I was somewhat surprised in the morning at the extraordinary anxiety of the landlord to hurry us all away ; inso-much, that I was put to considerable inconvenience,

by having my luggage summoned unexpectedly full half an hour before the appointed hour, the landlord asserting, in opposition to the watches of the whole party, that his was the correct time. The time of departure of the packet-boat is eight o'clock, matters being arranged so as to wait for the arrival of the early railway train from Leeds. As the distance from the inn to the vessel is not trifling, and the conveyance of all the luggage undertaken by the landlord, many, being totally unprepared, were hustled grumbling away.

It is not always that people in this world understand when they are well treated, and though our host had unquestionably 'welcomed the coming, sped the going guest,' it remained for a few hours' consideration and experience to show that his motives were directed to our prosperity.

The navigation of the Ouse and Humber, owing to shoals and shifting sands, is, at all times, as bad as can well be. This morning the tide was fast ebbing, and though to have started one minute sooner might possibly have operated in our favour, yet, in point of fact, the chances were, after all, about ten to one, that we stuck in the mud. Notwithstanding such a state of things, and although it is impossible to make the voyage down unless with sufficient water, and at the top of a tide, the proprietors of the packet-boat start every morning unflinchingly at eight o'clock, being the time of arrival of the railway train,—this in spite of wind and tide, and in defiance of all rational objections.

Punctually at eight o'clock the Leeds train arrived, with a numerous cargo; when all the passengers and luggage were put on board the steamer

intended to carry us to Hull. Doubts were soon expressed by those partially acquainted with the river as to whether the ebb were not too far advanced; but before we had been a couple of hours on the way, indications appeared sufficient to set speculation at rest, for the water, thick as a puddle, actually retarded the rate of the steamer; and two men, one on each side, each with a chequered pole in his hands, continually announced the soundings. After being tantalized for some time by the several annunciations of "six foot, five foot, five and a half foot, five foot," and so on; at last came "four and a half foot," and then she stuck. As it turned out in the sequel, this not happening to be the spot whereon the captain had made up his mind to repose, he was accordingly the more active and anxious to get the vessel afloat. In this object, he received able support from all his passengers, who, about forty in number, condescendingly acted in concert under his directions, and shuffled across from one side to another so as to keep her going, and prevent her from lying quietly down on the mud. Whenever, in a coarse gruff voice, he gave the emphatic word of command "Rowl her," the crowd, like sheep at the bark of a dog, trotted across the deck treading on one another's heels, and suffering much personal inconvenience. At the same time they hauled upon a rope, previously sent on shore, and made fast to a purchase, till the vessel was disengaged from her soft bed, and again afloat in a channel nearer the shore. We proceeded now about two miles farther, when the men with the chequered sounding poles were at work again for a few minutes; and then came an end to all uncertainty, for we touched the

ground again, and in a few seconds were laid up in right earnest.

The captain now was so well prepared for the catastrophe, that not an oar was plied, or the least exertion of any sort made; but here she remained for three hours, during which time an opportunity was afforded to those inclined to reflection to determine the cause why this packet-boat might not, by starting some time later, have allowed the people to pass their time at Selby instead of upon this mud-bank. On asking eagerly for information on this point, it was hinted that the liquors on board were excellent; but this is mere hearsay. Some of the passengers, after remonstrance, were put on shore in a boat, and walked about three miles to the new town and port of Goole, where we re-embarked at two o'clock, arriving at Hull at six o'clock in the evening.

Such accidents, it is said, on the spot, are of rare occurrence, taking place only at neap tides. At all events a similar fate to the above related betided the passengers who arrived the two subsequent days at Hull; and an iron passage-boat recently placed on the station, notwithstanding her lighter draught of water, meets frequently with like disasters. The railroad from Selby to Hull, which will occupy a line of about thirty miles, and be performed in one-fifth of the time required for the passage by water, becomes a very earnest object of anticipation to those who travel in this direction. Notwithstanding the vast expanse of the Humber below its confluence with the Trent, steamers of small size, as has already been observed, are unable to make the passage unless at the latter part of a

tide; shifting sand-banks, sometimes here, sometimes there, thousands of acres, perhaps at first accidentally overflowed, are continually rolling backwards and forwards beneath the surface,—land which at this moment might possibly have been under the plough, but for some casual circumstance connected with the early history of the river. There are numberless instances, no doubt, where a single man with a spade may have been enabled to alter the direction of a stream for ever; and the Dutch river, whereby the course of the Don was thrown, by a cut of seven miles, into a new channel, is an instance of what, on a large scale, may be effected. The successful drainage, too, of the Fens in Lincolnshire, whereby entire new parishes have been reclaimed and rescued from the deep, leads nearer to the conclusion, that science may still devise the means, by drainage and embankment, to effect material improvements in the navigation of the Humber.

CHAPTER XIV.

G O O L E.

Communication from London by Goole to Manchester—A specimen of the Journey—A Chimney Clock at Doncaster—Tide-coaches—A Coach-race—Thorne Quay—Dutch River—Cornelius Vanmuden—Warping—A Walk from Goole to Thorne—Crops—Waggons—Ride to Keadby—Reclaimed Lands—Town of Goole—Its rapid increase—New Works—A Meeting of Ranters—Knottingley Canal—Rapid Horse-boat—Competition with Steam—A Voyage by the former from Goole to Knottingley—A Voyage by the Steamer, by the same route, to Leeds.

A CHEAP line of travelling during the last two years has extended from London, by Goole, Doncaster, and Sheffield, to Manchester; from which latter town an outside passenger, in consequence of the competition among the proprietors of the Hull steam-vessels, may perform a journey through the places aforesaid, by land and by water, for about fifteen shillings. Leaving Manchester, he is in the first place conveyed in the regular stage-coach as far as Sheffield, from whence tide-coaches daily depart to the small town of Thorne, on the banks of the river Don. Hither a steamer daily arrives and returns, tide permitting, to and from Hull; but as the navigation of the river Don is precarious, it frequently happens that, on slack tides, the Hull steamer can come no higher than Goole, which latter town is situated on the Ouse, immediately at the mouth of the Don, in which case the passengers are carried from Thorne to Goole in a vessel towed by

horses, and of lighter draught than the steamer. Thus the communication, though slow, may be called sure.

When, in the latter part of the summer, I fell into this line of peregrination at Sheffield, I found it impossible to inform myself beforehand of the above particulars: upon inquiry, every one of the passengers certainly possessed a general notion where he was going, yet not one in a score exactly knew how he was to be conveyed.

I arrived at Doncaster early in the evening, to await the arrival of the tide-coaches to Thorne the next morning. As I sauntered round the town, I had more than one opportunity of hearing the chimes of the old church clock, the machinery of which has now been going these fifty years. Either I was over-fastidious, or my taste not formed to the style, or the music struck up suddenly as I was thinking of something else: but somehow or other, with all respect to old customs, I could not reconcile the melodies to the edifice;—one, the “Miller of Mansfield,” another, the “Pretty Girl,” or the “Pretty Maid,” or some such name, and the rest (except a psalm tune or two for particular occasions) of a like description;—besides, the bell-ropes were crazy, or the iron-work rusty—something caused the hammer now and then to hang drowsily on a note, and then, as if to make up for loss of time, hurry furiously over a dozen together.

It was before seven o'clock in the morning, after passing the night at Doncaster, that I found myself among a crowd of persons anxiously waiting the arrival of the tide-coaches, which had departed from Sheffield at five o'clock, in order to reach Thorne at

half-past eight, in time for the Hull steamer. The distance is not more than thirty miles, and three hours and a half sufficient time for the journey; nevertheless, from one cause of delay or another, it is not performed without much furious driving. On the present occasion, the opposition on the road was extraordinary; persons of all conditions, in short, everybody was interested one way or other: so that the crowd, before alluded to, consisted not merely of travellers and bundle-bearers attracted to the spot by their own particular objects, but also of the idle riffraff of the town of Doncaster, assembled to see what might be very properly called—a race of coaches. Such was the animation evinced by the multitude, that, for aught I know, bets might have been laid on the advent of the rival vehicles, which now came furiously galloping up the street.

Having arrived thus far from Sheffield by a well-regulated conveyance, and disinclined to quit a quiet channel for this unexpected bubbling of the waters, I actually began seriously to weigh in my mind the risk of the experiment against its advantages;—but once in the current, reflection comes too late. Some of the helpers shouldered out of the way the smoking cattle; others held a finger and thumb each on the corner of the fresh steeds' cloths; so that I had but barely time to take my seat inside, before somebody, the Lord knows who, said "All's right," the door was violently banged into its place, and away we went. The boys ran hallooing after us as we rattled over the stones—the children threw up their hats—the old men and women took off their spectacles—every mouth was distended with a smile—the dogs hung their under

jaws and wagged their tails in silence, and every cobbler turned out of his stall to see our fleet of coaches. Like a pack of fox-hounds, carrying a breast-high scent across a country, we bore with us the sympathies of the young and the old, the halt and the blind, and imposed, for the time being, a stop to all domestic and other occupation. Two vehicles had departed a few seconds before us, but these we soon overtook, and sometimes one a-head, sometimes another, there we lay, favourites of fortune, inasmuch as no accident occurred, yard-arm and yard-arm, as it were, for the rest of the journey.

The usual place of embarkation is Thorne Quay, a small village about a mile beyond the town of Thorne; but the tide, on our arrival there, was so low, that the coaches proceeded a mile farther down the river Don, to a place called "Hangman's Hill," celebrated for the summary vengeance taken in former days, on the part of Cornelius Van Muden, on certain caitiffs who maliciously damaged his dikes. At Hangman's Hill, we found in readiness for the voyage to Goole a flat-bottomed punt, in shape like a Sunderland keel, but furnished with a good cabin under a raised bulkhead, sufficient effectively to protect the passengers from the weather. We were towed the whole way, by a couple of horses, to Goole, where, on our arrival, the Hull steamer lay at the quay ready to proceed on her way.

The last seven miles of the voyage were performed through the "Dutch River," a singular and magnificent work of art; a straight cut, whereby the ancient circuitous course of the river Don was effectively changed, in the reign of Charles II., by the aforesaid Van Muden. At the present day its

deep shelving banks, its ample breadth, and the ebbing and flowing of the tide within its channel, give it all the appearances of a natural river. I paced one of the old-fashioned wooden bridges, with a draw-bridge in the centre, thrown across it at Goole, and found the length to be eighty-three yards.

No part of England more resembles Holland than the theatre of the above performance; and therefore no other spot can probably be selected, better suited to the operations of a Dutchman; but poor Van Mudén affords, by his fate, one additional melancholy instance of those benefactors of mankind, victims to the inveteracy with which improvement in its early stage is always resisted. Unable to stem the torrent of opposition raised by interested persons against him—in spite of his able plans, their vigorous execution, and the liberal appropriation of the whole of his private means to support them—notwithstanding the thousands of acres of land reclaimed by drainage, and that he may fairly be said, at least, to have added one to the navigable rivers of the country—in return for all these benefits, poor Van Mudén first fell into discredit, then in debt, and ultimately perished in gaol. To this day, besides his dikes and embankments, small Dutch-looking edifices, little windmills, and people bearing Dutch names, perpetuate the memory of those Hollanders who, at the period alluded to, took occasion to settle in the neighbourhood, in consequence of the royal grant, which entitled the projector to a proportion (I believe one-third) of all the land he might be able to reclaim. While the original lofty banks of the Dutch river, its dams, and sluices are

in high perfection, the bed of the old river has received gradual accumulations of alluvial soil and vegetation, so as now to be filled up and scarcely discernible.

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One would at first be inclined to wonder how it came to pass that the operation of “warping,” to which the embankments of this river first led the way, should have remained so long unapplied, and, in point of fact, unknown altogether; and in attempting to account for the circumstance, it is natural to attribute it to the torpid state of people’s faculties, contrasted with the vivid rage for improvement existing during the last half-century. Yet it is fair to conclude that the owners of lands on a level so low, that it became their first object and care to protect them, at a great expense, from inundation,—to whom the ability of managing sluices, so as to turn the stream *from* their fields, had been as a science from their infancy, should have been slow to adopt a process whereby the whole of their former proceedings were to be reversed, and their understandings, with all their early prejudices, turned directly topsy-turvy. Moreover, the warping system is not conformable to general practice, but entirely arises out of local causes, that is to say, the peculiar muddiness of the water.

The lands in question are those contiguous to the Trent and Ouse, which two rivers, flowing through a wide extent of low, flat soil, become charged and saturated to the highest degree with earthy matter, of which alluvial substance, by the system alluded to, a considerable deposit is procured, artificial means having been taken to over-

flow the ground for that purpose. On passing through these rivers, the turbid state of the water is very remarkable, sufficient, one would imagine, to suffocate the fishes, as wave after wave rolls after the stern of the vessel, half mud, half water, and increased in volume by the powerful reaction against the shallow bottom. One might expect that from below the confluence of the Trent and Ouse, the Humber would carry down its stream into the sea the mud received within its channel, and bring back at the flood-tide a quantity of clear water; but for many miles on either side of the mouth of the latter, the eastern coast, composed of earthy cliffs, is continually crumbling away; so that as much soil as is carried down is continually brought back again in exchange.

It was about fifty or sixty years ago, when "Warping" was first here introduced. The process is performed by subjecting the lands to be warped to the ingress and egress of the tide, until, by a gradual accumulation of strata, one, two, three, or four feet of mould, as may be required, are deposited over a barren waste, and what was before a heathery moor is converted to a state of exuberant fertility.

Having arrived at Goole, and being extremely anxious to see some of the lands in question, I made inquiry, not of those persons probably the best able to give information, but of those the most likely, of the few to whom I was limited by time and circumstances, to have it in their power to direct me where I might see the process to the best advantage. It is rather extraordinary, considering that I was not many miles removed from the principal scene of

operations, that I found no person possessed of local knowledge for the purpose. One directed me to go here, another there, so little do people interest themselves about those things they have an opportunity of seeing every day. At last, from what I could learn, I judged it most expedient to follow the course of the Dutch River from Goole along the east bank, on foot, and thence, after proceeding three miles, to take a straight road six miles long, which leads to Thorne.

Although the greater part of the land close to the river had been reclaimed some years since by warping, I saw little, as I wished to see, under present operation; at the same time the excessive richness of the crops and soil were most extraordinary. I never saw finer wheat, beans, or potatoes; the soft, black, friable earth, in rows along the roots of the latter, might have passed, every particle of it, through a fine hair-sieve. I observed also some fields of flax. Leaving the river, the road aforesaid leads nearly to the town of Thorne, and on account of its extending for six miles without a turning, is called "Journey me Long Lane;" the line is a dead level, with abundance of greensward preserved on both sides.

During the walk I observed one field very recently laid open to the tide, which flowed in from the long drains leading from the Dutch River. The water had receded, the mud lay upon it, looking fat as fish oil, and as the small streams bubbled through the cracks and fissures, geese and gulls were apparently filling their bellies very prosperously. Every field hereabouts is provided with a bank and double ditch; and as all these ditches communicate

with the main drain, nothing more is necessary than to make a breach in the bank of the field to be warped, and let the water through.

The description of waggon in use through this flat tract of country is rather extraordinary. The body is slung high, extremely narrow, and smaller at the bottom than the top, the greater width being about three feet one inch: the carriage is low, and as it is driven not with shafts, but a pole, the latter hardly reaches above the horses' knees. A pair are driven abreast, with no other harness than collar, chain traces, and very loose belly-bands; the pole-chains and swingle-trees are attached to the waggon. A single rein is fixed to the near horse's cheek, the other horse being made fast to his neighbour's collar by a halter; thus the driver has a pull only at one of his cattle, the single rein being formed so as to end in a thong, like an *aide-de-camp's* whip, and this thong is made fast to the front of the waggon. They contrive with these appendages not only to proceed usually about five miles an hour, but to manage and turn the vehicle, by many degrees quicker than a shaft-waggon; the swingle-trees meanwhile, it must be confessed, most awfully rattling against the horses' hocks.

At Thorne I first got precise information on the subject I required, being not only directed by a gentleman of the town to the immediate neighbourhood of Keadby, on the banks of the Trent, but also provided with a letter to a person able to explain some operations there going forward on a large scale. I accordingly procured a horse of my landlord to ride thither. The whole distance was along the towing-path of the Keadby Canal, and I think I

never experienced a more disagreeable ride ; for the animal I had hired was a tall rough-trotting post-horse, blind of the near eye, and unused to the operation of opening a gate, so that as these were numerous, low, and each with a ponderous swing, I was always obliged on each occasion to dismount and lead him through. The awkward beast, in return for this act of condescension, the moment I approached his blind side to get up again, ran sideways, and snorted, at the same time he did his best to thwart my purpose by inconvenient actions and attitudes. On my arrival at Keadby, having found the person to whom my note was addressed, we both together walked about a mile back the way I had come, to the spot in question. An extent of one hundred and eighty-four acres was here surrounded by an embankment, or sea-wall ; the whole of which, only a few years before, had been a moor of peat-moss ; now, it was covered with exuberant patches of rich white clover, and fed seventy horses, thirty-six oxen, and one hundred and sixty sheep : the above stock being apparently more than plentifully supplied with pasture.

The operation of raising the embankment which surrounded the enclosure occupied, as my companion informed me, one hundred and fifty labourers for eight months, or thereabouts. The water, then conducted from the large main drain, was allowed ingress and egress over the land for three successive years, during which time the quantity of "warp" accumulated, different at different parts, varied from one to four feet. One foot of warp over a bed of peat is considered quite sufficient, though a greater quantity is at times laid on, with

reference to the level of the land ; it being generally necessary to conduct the water first to the extremity of the enclosed space, and having raised that as much as possible, then to allow it to flow back again. After the plot in question had laid under warp for the three years aforesaid, it was allowed one year to settle, and then, at the latter end of the last summer, it was sown with clover-seed. Therefore at the time I saw it, on the 8th of July, 1835, scarcely twelve months had elapsed since the first seeds were thrown upon it. It was proposed to allow the ground to remain under pasture for two or three years, and then bring it under the plough. The clover was rank, and in patches, the ground rent in large fissures, in appearance like what in fact it really was, the bed of a river ; and the resemblance was more complete, as indigenous water-plants, with thick succulent stalks, sprang up here and there in large bunches : these the cattle ate greedily.

This plot of ground, besides two more lots, in all eight hundred acres, were irrigated from one main drain, two miles long and fifty feet wide. I understood that the proprietors of the three lots paid also for the use of a part of another large drain, half a mile in length, at the rate of seven pounds per acre. Five feet of water was the depth laid on, of which the ingress and egress were perfectly uncontrolled. It is not necessary to dam up water in order to procure a deposit ; for as gravity is continually acting on the particles held in solution, a great part, notwithstanding continual motion, finds its way to the bottom. The different strata left by each tide are not unfrequently quite

distinguishable; and finally, a broad expanse of rich earth, of at least a foot in thickness, and so pure that a pebble in a thousand acres can hardly be found to throw at a sparrow, remains to reward the labours of the husbandman.

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It is singular that in most modern maps the town of Goole is not laid down. Yet, there it stands on the banks of the Ouse, two hundred yards from the point where the Dutch River, recently alluded to, empties itself therein—a striking instance of the rapid advance of British commerce:—a small village risen to the dignity and importance of a considerable shipping port; and at the same time the very boys that play at marbles in the streets call to mind the digging of its foundations.

The town of Goole has been forced into existence by the rich and powerful Aire and Calder Company, who, possessing the inland navigation of these two rivers by the important ducts of Leeds and Wakefield, have here established the means of communicating with the open sea without dependance on the Port of Hull. Whatever may be the future success of this new town, considering present advantages and future probabilities—that its commerce, though wrested from Hull, is not only maintained in spite of a long additional distance of bad navigation, but that that commerce, such as it is, is threatened with the probable completion, at no distant period, of a parallel rival land communication, by the newly projected Selby railroad; it is very certain that the docks and public edifices have been erected on a scale of magnificence, equal, as far as they go in extent, to Liverpool or any other place.

Ample space has been allotted to the streets, and the buildings, including spacious bonding warehouses, are of the finest red brick. Besides the extensive docks already completed, a new one, apparently by far the largest of any, is in a forward state; the cast-iron gates of this dock, and the lock, will, when finished, be, it is said, the largest in England; the breadth of the latter, an inverted arch, being from coping to coping fifty-eight feet, and the extreme breadth in the widest part of the curve sixty-four feet. At present, the excavation of the dock, though in rapid progress, is not finished. The coffer-dam, erected for its temporary protection from the river, is of itself a great work;—one thousand three hundred large piles have already been planted, in three rows, of a semi-elliptical form, and parallel to each other; the length of the inner row, 420 feet.

I observed the workmen as they were laying the foundation of the Dock wall. First a row of piles were driven, and on these, large beams laid longitudinally; the wall was seven feet in breadth at the bottom, tapering to five feet at the top; height, 21 feet,—finished with brick, and the Bramley Fall freestone; rough stone and grouting in the middle.

A curious instrument was occasionally used, for the purpose of raising stones, workmen's tools, or what not, dropped by chance into the water: it was, in fact, neither more nor less than a pair of tweezers, the handles eleven yards long, and the claw one yard; a long chain being fixed at the hinge, the point between the handles and claw. The movements of the instrument after being let down in the water were regulated by hand, till having seized the

lost article, all was hauled up together by means of a crane on shore, or crab, as the workmen called it.

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As I was sitting in the parlour at the inn, in the evening, looking into the stable-yard, I was disturbed by a very disagreeable noise, like a parcel of country fellows singing : now and then it appeared as if a quarrel had commenced, speedily about to be terminated by blows. This continued so long and incessant, as to stop my occupation altogether, and oblige me to listen. On inquiry, I found it proceeded from a building on the opposite side, occupied by a congregation of primitive Methodists, or Ranters, and these orgies were merely their mode of expressing devotion.

Reading or writing was quite out of the question, so, as I wished to obtain a little idea of what was going forward, I walked across the yard, and, proceeding to the passage, which led, by some stairs, to their apartment, I found it previously occupied by young men and women in pairs, whose attitudes and conduct I could not clearly define, as it was almost dark, but whose meditations, at all events, I did not feel inclined to disturb. Therefore I retreated back into the stable-yard, and contented myself by standing under the window of the room to listen.

It is quite beyond the power of human lungs, I am sure, to belch forth more discordant tones than were uttered on the present occasion : the inmates of the chamber roared and stamped in chorus, and howled, in a manner to be compared, if to anything human, to a dance of savage Hottentots. One fellow, especially, wrought to a tip-top pitch of enthusiasm, and in a state as it were of breathless exhaustion,

vented ejaculations at regular intervals, panting monotonously, over and over again, the expression "Praise the Lord:"—which words proceeded from his throat all in a lump, as it were in a fretful, frantic burst, with a sound more like the sudden, short bark of a huge dog, than the voice of a man. Without derogating from the dignity of religion under any of her forms, it may be simply and harmlessly observed, that the deep emotions of the heart are best expressed in moderated tones, or silence; and that to give loose to such unbridled gusts of passion as were exhibited is positively incompatible with the decencies of civilization.

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The Knottingley Canal, cut some years since by the Aire and Calder Company (the Marquis of Carabus of these parts), begins at Goole, and falls into the river Aire, a short distance below Ferry-bridge: it runs parallel, and quite close, to the Dutch river for the whole of the length of the latter, although one would have imagined that this, from its ample dimensions, and being provided with a towing-path as well as the Canal, would have answered the purpose of both. However, the navigation of the river is certainly at times impeded by shallows, to which the canal, belonging exclusively to the Company, is not subject.

The town of Goole is actually built upon the Canal, the basin being close to the Docks; the Dutch River is, however, as has been observed, not above two hundred yards from the other.

During the last summer this canal was the theatre of a severe competition between the rival powers of steam and cattle,—a boat rapidly towed by horses,

and a small steamer; and although fortune has since decided in favour of the latter, it was not for lack of energy on the part of the horse proprietor. His boat was, to use a common expression, better turned out, and in every respect more fancifully equipped, than any other of these quickly towed craft, of which the one from Glasgow to Paisley in Scotland may be said to have been the first established. This latter I saw at its work only a few weeks ago, when it was evident that though they have reduced their pace to a reasonable rate, eight or nine miles an hour, and the boys ride decidedly better, and give their horses a fairer chance than those I have happened to see in the service of any of our English boats, yet even with all these advantages, the animals were subjected to too violent exertion.

The Knottingley proprietor has failed, not from a want of desire to please the public, but from requiring too much of his cattle, in order to arrive at which conclusion, it is quite sufficient to see the state of a towing horse at the close of his labour: the dead, heavy pull is, without the nicest management on the part of the rider, really heart-breaking; precisely like forcing a horse, without feeling or consideration, to gallop at the top of his speed, through a stiff fallow: yet with some of these boats, the fellows appointed to ride, frequently welter weights, crack their whips as happily as a ten-stone postilion, without taking the slightest pains to control and regulate the powers of their horses.

In the middle of last summer, when the contest between the rival boats was at its height, I made a trip from Goole to Knottingley, in the one aforesaid. We started at ten o'clock in the morning, so soon

as the steamers from Hull had arrived, which bring hither passengers every day for both lines, the one to Selby and the other to Knottingley. The vessel might almost have been mistaken in point of appearance for a triumphal barge, so gaudily, or rather whimsically, was she decorated and painted, exhibiting, among other embellishments, a gigantic portrait of Queen Adelaide on her quarter; it was, in fact, a floating house, with seven windows on each side; and affording to those passengers who preferred an airy seat, a flat roof for the purpose, as well as comfortable benches thereon, firmly screwed down, to sit upon;—those who occupied the cabin enjoyed the usual accommodation of a steam-boat.

Though built purposely for speed and light draft, this vessel was firm, and steady in the water; she was indeed two boats linked together, with a double keel, and open channel between both;—a moveable cast-iron cutwater fixed a-head, when lifted up was completely out of the way, but when down formed a very acute angle, and brought as it were the two boats into one; preventing the stream from filling the hollow channel, and obstructing the progress.

This double boat, very properly denominated "The Twin Boat," was lashed to the side of the Quay, so that we had nothing to do but step on board. The fare from Goole to Knottingley, within one mile of Ferrybridge, a distance of eighteen miles,—was two shillings.

Before the towing-path commences, a space of a few hundred yards intervenes, through which the boat is worked through locks, and among numerous craft, by pushing and hauling, from one to the other, by boat-hooks. We were occasionally somewhat in-

conveniently jammed together, though it was amusing to observe how steadily, yet how differently, every navigator made his way, according to the laws of river *etiquette* and mutual accommodation. On one occasion, our steersman fixed his point on the plank at which three men were eating their breakfast, and though the pole was streaming with water, neither of the three men seemed surprised or offended. Again, we ran bump upon a lighter, where the steersman's wife presided at the tiller. An altercation ensued, but the lady held on, in spite of remonstrance, though the privileges of her sex were disregarded, in the midst of terms of art and nautical phrases.

Extraordinary preparations were manifest the moment we were clear of the town, and had arrived at the towing-path. Four horses, each nearly thoroughbred, were standing ready, with traces to their collars;—and immediately being hooked on, cantered away, without perceptible motion, or any noise to interrupt meditation; no sound, other than the soft liquid bubbling of the water underneath the boat. The four horses were driven by three postilions, each a small boy, under six stone, and dressed in a light blue jacket, with red collar, and a white hat. The two foremost, and the hindmost horses were ridden; the other carried no rider. The draft of each horse was, by a separate rope, attached to the tow rope, by which one principal objection to the mode, namely that of drawing in an oblique line, was somewhat palliated; but, nevertheless, as they drew by ordinary traces, their hind legs were continually dragged from the proper point of resistance, to their great discomfiture and increase of labour.

We had two sets of cattle on the journey, each set performing nine miles, in about an hour and ten minutes. I proposed to the proprietor to make trial of the lasso, which seems, of all the services to which that contrivance can possibly be applied, most particularly suited to this, as tending to correct the obliquity of the draft, and, at the same time, afford the animal a firmer footing. It is singular that the lasso should never have been thought of on some one or other of our canal towing-paths;—the Knottingley owner said he would try it—whether he did or not I have not been informed.

The canal-boats from the Humber, instead of using this canal, proceed usually to Ferrybridge, *viâ* Selby, between which latter places there is also water-communication. Lighters of upwards of forty tons burden, and sixty register, make their passage the whole distance from Hull to Manchester, by the way of Wakefield, Cooper-bridge, and Rochdale.

When at Goole, in the present summer, the establishment of the “twin-boat” had come to an end; advertisements then proclaimed that the communication was regularly sustained, by the above canal, between Goole and Leeds by steam, and also that great alterations and improvements had been effected on a part of the line. I determined to go to Leeds accordingly.

The vessel was one of the lowest class of steamers, about equal, perhaps, to those which ply at all hours of the day between Shields and Newcastle; however, the proceedings of the voyage were as follows. We left Goole at twenty-five minutes before twelve o'clock; one of our paddles broke in two places before we got out of the dock, and notwithstanding

it was quite evident the vessel was unfit to proceed, on we went, the skipper having directed another steamer to follow in our wake. We encountered sundry delays in consequence of the crazy paddle, and were four hours and a half performing the distance to Knottingley, instead of completing it, as on the previous voyage, within two. The other boat, in due course, overtook us, when we were shifted on board of her, and were obliged to take our own lame vessel in tow, till we arrived at Castleford ; there we left the latter behind. Altogether we were ten hours on our way to Leeds.

Castleford occupies the point where the Aire and Calder converge, the latter river proceeding to Wakefield, and the former to Leeds, from which place it is distant nine miles : here the river dues, both for Leeds and Wakefield, are collected ; and here the lightermen, bound either way, leave their skiffs till their return ; of these small craft may be seen from fifty to a hundred in a row, made fast at the bank of the river.

The principal improvements, before alluded to, on this line of water-communication, which have been recently completed by the Aire and Calder Company, are between Castleford and Leeds. Although the navigation is impeded by several locks, the workmanship exhibited in these, and in the canal throughout, render this approach to Leeds worthy of a large metropolis. In some places the channel of the river Aire has been improved and rendered serviceable, in others it has been altogether abandoned, and new cuts substituted ; the depth of the water being seven or eight feet throughout. The long vistas of water, wide and straight, bounded by

graceful elliptical bridges in the distance, the lock-houses, ornamental buildings, the solid masonry at the sides, whether by slanting planes of paving-stone, or low perpendicular walls, altogether form a pleasing exhibition of modern art and excellent taste.

One cast-iron bridge at the entrance of the suburbs, though some time since erected, should not be forgotten; a suspension platform, supported under a segment arch. The arch, in span one hundred and forty feet, height forty feet, consists of two ribs; each rib of five castings, each casting twelve tons; so that the weight of the whole supporting iron-arch is one hundred and twenty tons.

CHAPTER XV.

HULL.

A Voyage from London to Hull by the *Gazelle*—Idlers on the Quay—Victoria Hotel—A Marine Landscape—A Shipwreck in Miniature—Arrival of a Whaler—The Docks—Drawbridges—Extreme nicety of their action—An arbitrary Governor—Intense interest on the Ship's arrival—Custom of the May Garland—Competition of Youth—A Race up the Rigging—A Seaman's Son in danger—Seamen on board a Whaler—State of the Hold—"Rump and Tail"—Greenland Yards—A Ship-Launch well performed—The same case reversed—Diving Bell—A few words in behalf of a Squirrel—Silver-haired Rabbits—Manufactory of White and Red Lead.

TRAVELLERS in England, at the present day, have no reason to complain of high charges. The *Gazelle* steamer, in which vessel I left London, completed her voyage to Hull, in the teeth of a stiff breeze from the north-west, within thirty-six hours; the first cabin fare was ten shillings; the steward kind and attentive, the berths good, and provisions of the best description. It must be confessed that those of the after-cabin paid somewhat dear for the privilege of exclusiveness, for the wind swept along the raised quarter-deck with unrestrained force, the vessel being provided with painted green netting instead of bulwarks; nor was there any other protection than this frail substitute against the weather.

At no sea-port I know of have people apparently so much spare time upon their hands as Hull. The

inhabitants, on the arrival of a steamer, whether from London, York, Leeds, Gainsborough, Lynn, Yarmouth, Newcastle, Dunkirk, Hamburgh, or Rotterdam, for with all these places there is continual communication, literally infest the quays in swarms. At low water the landing is, to say the best of it, inconvenient; sometimes it falls to the lot of the stranger to clamber up a perpendicular ladder; at other times, peradventure, he must walk across a rickety plank from the ship to the shore; but always, and under every contingency, he is reduced to the necessity of fighting his way to dry land, and if not tolerably stout in heart and body, at the risk of being shoved off his "giddy footing," bundles and all, into the mud. Such matters are better managed at Margate, where nobody denies they have at times rough customers to deal with. Passengers and their luggage are there protected, and such loiterers, on the arrival of a vessel, unceremoniously hustled off the pier. A signal flag is first hoisted at both ends, and the hint, if not immediately attended to, enforced by the police.

There is no change of scene more delightful than, after the turmoil of a sea-voyage, to sit refreshed and contented at an open window on the sea-shore, and view the same bustle still going forward in which one has been so recently engaged. The Victoria Hotel affords such a *gazebo* in great perfection, close to the banks of the Humber, and overlooking one of the principal landing quays of the town. Here, as soon as I had dined, I enjoyed, amidst the hissing of steamers, and the wrangling of boatmen below, the contrast of serene repose.

How charming to the senses is the incessant

mutability of motion ! When a piece of painted canvass, an inanimate representation of colours and forms, an assemblage brought together and fixed by the hands of the artist in one of Time's short, flashing intervals, can fascinate the observation, and call forth our warmest energies,—how much more is due to the living panorama, where the quivering leaf, the undulating water, the fleeting shadow, and light in its thousand varying hues, combine to recreate the mind with the eternal succession of novelty,—the *ανηριθμὸν γελασμά* of bountiful nature !

No marine landscape can be better calculated to convey agreeable impressions to the mind than the broad expanse of the Humber on a fine evening in autumn. On the present occasion the river was crowded with small craft, passengers were bending their steps to and from the several landing-places, and a stately steamer of first-rate proportions was making her way out of port bound to Hamburgh. Having nothing at all to do, I wholly abandoned myself to the occupation of watching the motions of the vessels,—speculating upon the manœuvres of one as she gallantly bore up to her port, or regarding with equal attention another ready to depart, as her loosened sails flapped under the gentle breeze ;—and thus attaching a momentary importance to any trifling deviation from ordinary appearance, I was the more inclined to observe the progress of a large lighter or sloop, which, with two men on board, and the wind right aft, was now making the best of her way towards the quay. The men were standing together on the stern, while the vessel seemed to labour and roll in an extraordinary manner ; I

thought I had never seen one so heavily laden and low in the water, and, as I looked more attentively, I found that neither was I singular in my opinion, nor unreasonable in my apprehensions, for a crowd of people had begun already to hurry to the spot to observe her motions. A perfect representation of the foundering of a ship at sea followed in the catastrophe. The lighter, now within fifty yards of the quay, suddenly rolled over, almost on her beam-ends, righted, gave another roll, righted again, then made one more heavy lurch, and in another instant the water was bubbling above her. The men stuck by her to the last, and jumped cleverly into the boat a-midships, without wetting a thread. The lighter was laden with limestone, and there remained, within twenty yards of the quay, in three-fathom water, her mast above the surface for twenty-four hours ; her cargo was all taken out at low water, when she floated, and was towed up the river Hull without damage.

After this event, a couple of hours before sunset, the crowd of people before the doors of the hotel, of whom there are generally a score or two, more or less, who stand listlessly gazing or watch the arrival or departure of the shipping, appeared more restless and active than before ; and on going out of the house to ascertain the cause, I found that a whaler had arrived from the Greenland seas, and was now about to be towed into port. The people were all making their way as fast as they could towards the docks ; I, therefore, threw myself into the current, and moved on through the narrow streets along with the rest.

The Hull Docks communicate on the east end

with the river Hull, a few hundred yards from the point whence it empties itself into the Humber, and on the west end directly with the Humber ; so that, in fact, the town is situated on an island. The three docks, namely, the Old Dock, the Junction Dock, and the Humber Dock, are, I believe, merely an enlargement of the *fosse*, which, in ancient times, partly surrounded the town ; and as the buildings extend over a considerable portion of ground on the other side, there is no other communication than by means of the drawbridges. Of these there is one at the head of each dock, and all are particularly well contrived, to the end that, as the whole population depend entirely upon them as a thoroughfare, the evolutions may be as quick as is practicable.

Each bridge consists of two leaves, each leaf nine yards, or thereabouts, in length, from the extremity to the point on which it turns, thus allowing an open space of fifty-four feet for a vessel to pass through. Although each leaf contains forty tons of cast-iron, it is raised vertically by a couple of men with perfect facility, being poised upon its pivot by means of heavy counteracting weights, almost in equilibrio ; which weights, as the leaf is raised, sink into a cavity prepared to receive them. The machinery, merely a windlass acting upon a pinion and circular rack, performs its office with such celerity, that in letting a vessel through, she is hardly clear, when the leaves, which as she passes hover as it were over her rigging, brush lightly on her stern, and return to their horizontal position. It is beautiful to see, as in the present case, a vast weight handled with such delicacy ; the men at the windlass being able to regulate with the utmost nicety the exact space necessary to

let a vessel through;—and invariably, in case of two vessels passing, one immediately after another, though a few yards only intervene between them, the bridge is lowered so soon as the first is clear, and raised again for the next.

An old seafaring gentleman, a weather-beaten veteran, conducts operations on these occasions; during which short period of time this superintendent of the bridges is clothed in the most absolute authority. The first order to be given is necessarily to “Clear the bridge,” and thence his jurisdiction extends to no less than three different classes of his Majesty’s subjects, who are all and every one of them, for the time being, amenable to his will; that is to say, the people on board the ship to be hauled through, the men working under his immediate order at the windlass, and passengers on the point of crossing the bridge.

With the eye of a hawk, and the stride of a Port Admiral, sometimes casting a rapid glance among the rigging, and then again towards the men at the bridge, as the old gentleman paces backwards and forwards, speaking-trumpet in hand, as if preparing for a naval engagement, his motions are eagerly watched by those anxious to cross the platform, who, prepared for a spring and a run, wait the exact moment ere the instrument finds its way to his mouth. Not only can the old gentleman give the order when he sees it convenient, but he has also, what fortunately falls not to the lot of every arbitrary individual,—the means of enforcing obedience; and these means are somewhat ingenious. Previous to the raising the drawbridge, no sooner does the first awful command burst forth, in sound like the

stirring of coal in a furnace, than two hiatus or chasms appear on the platform, one on either extremity, and oppose in an instant an effectual obstacle to those about to cross; a part of the platform, four or five feet in length, extending the whole breadth, and suspended on strong hinges, having been turned round vertically, by means of levers, a quarter circle, for that purpose. By this preparatory measure an impediment being first opposed to all sorts of let or hinderance from the public, the operations are then commenced. The drawbridge is now steadily raised, and as the vessel glides through the bridge, meanwhile the governor imparts his orders to his men and to the crew—"Throw a rope ashore," "Haul in upon the slack," and so forth, till the stately vessel having passed, the leaves of the bridge, in obedience to a few backward turns of the windlass, perform their salam, and quietly descend again into their places; the above-mentioned chasms are, lastly, closed in like manner, by the levers, and the whole platform is rendered passable as before. The next moment the crowd, which during the interval has continued to accumulate, rush over in eager haste in opposite directions, like a flock of sheep.

A manœuvre, such as the one described, was now about to be put in practice on the *Greenlander*, which, at the moment I arrived at the old Dock Bridge, had cleared the gates communicating with the river Hull, and while the bridge and quays were crowded with as many persons as could stand together to see the operation, was being dragged by a long tow-rope from the quay up the dock towards the point in question.

The interest evinced by all descriptions of persons at Hull on the arrival of a whaler is very remarkable, for it may be said that the moral and physical affections of half the inhabitants are more or less excited,—some, in the hope or reality of profit, direct or indirect, and others, by a host of domestic joys and anxieties. And it is pleasing to contrast with the demeanour of the softer sex and of children, eagerly gazing among the multitude, in the fervent and pious endeavour to catch a first glance of a husband or a father, the tones of unrelenting obedience breaking out at intervals from on board the vessel, as the long-absent, manly tars are sternly occupied on their duty.

An additional cause rendered the present spectacle even still more touching. A custom prevails among the seamen of these vessels when traversing the polar seas, to fix, on the first day of May, a garland, aloft, suspended midway on a rope leading from the maintop-gallant mast-head to the foretop mast-head, a garland, not indeed bedecked with flowers, but ornamented with knots of riband, love-tokens of the lads from their lasses, each containing as it were a little tender history, sanctified in the heart's treasury, and with the details of which they alone are acquainted. However the garland, once placed in the above position, whether in allegorical allusion to fickleness or constancy,—the boundless range of woman's love from the torrid zone of her passions to the snowy regions of her heart,—be all that as it may, there it swings, blow high, blow low, in spite of sleet and hail, till the ship reaches once more her port.

No sooner does she arrive in the docks than, ac-

according to long-established custom, it becomes an object of supreme emulation among the boys of the town, seamen's sons, to compete for the possession of the aforesaid symbol, to which end, animated by the gaze of their friends on shore, and a spirit of rivalry among themselves, they vie with each other in a perilous race up the rigging. The contest was at this moment about to take place, the garland being suspended aloft in the position before described, and containing within its periphery the model of a ship cut from the heart of an English oak, the type of honest affection.

A gallant phalanx, animated by youth and enterprise, sprang from the shore, across the intervening craft, and mounted, by one simultaneous charge, on board the vessel, and still a numerous band continued to scale her sides, and nimbly run aloft by rope and rattlin. Every moment, as the strain and struggle among the competitors increased, the leading spirits rose above the rest, reducing the affair by degrees to smaller compass, and, finally, one boy alone so far outstripped his fellows, that common consent yielded to him the victory, and the eyes of all the multitude rested upon him. The boy, apparently about fourteen years old, gained the maintop-gallant mast, and descending by the rope above mentioned, the whole of his body meanwhile, below it, as he clung by his arms and feet, like a fly upon a ceiling, reached the garland, and in the same attitude now drew from his pocket a knife to cut it away. Some time elapsed, and yet he could not execute his purpose;—either the knife was blunt, or the rope to be cut was unsteady,—or swinging as he was in the air, he was unable to apply sufficient force, or,—

what is most probable, the fingers of him who made the fastenings, sturdy as his heart, had rendered them almost indissoluble; but be the cause what it might, the lad remained in his perilous situation so long, that an intense feeling of anxiety began to manifest itself in many quarters. At last he succeeded,—that is to say, he severed the garland, and, with his prize upon his arm, commenced progress upwards, climbing by the rope, when it became immediately evident that his strength, unequal to the exertion, had totally failed, and that, although labouring to advance with all his might, he could make no way whatever. It was pitiable to see a lad urged by the spirit of youth and the presence of a multitude into such a predicament; and during many seconds, such appeared to be his exhaustion, that I really thought he would loose his hold and fall on the deck. It must have been indeed a hard-hearted individual who could have remained unmoved at the scene; and I could not help reflecting on a mother's agony, on the pangs of her who, it is more than probable, was at that moment actually standing among the multitude. But the boy's heart was stout—the garland, as it proved in the sequel, was the only impediment: this, unable to bear away, and unwilling to relinquish, after a protracted struggle, finding it impossible to carry it with him, he placed on one of his feet and kicked to a comrade below. Relieved of the burden, he reached to the maintop-gallant mast-head, with the activity of a monkey, twisted the vane several times over his head, gave a few hearty cheers, and then, like lightning, descending on the deck, forthwith received the prize as its lawful owner.

The next morning, when I repaired to the docks, the sailors were busily employed on board the whaler, and merrily singing at the windlass, as barrel after barrel was hoisted upon deck. The hold of the vessel was a compact mass of blubber and barrels : not a square foot was lost ; the latter, some of them large and some small, of sizes arranged to accommodate stowage, were embedded in collops of fat, and supported by joists of whalebone. The tail-end and other parts of the fish, thus packed loose, are technically called “ rump and tail,” the bare mention of which, on accosting a Greenland seaman, will cause his eye to twinkle with sympathy and recollections of a whale-chase. The cargo raised from the hold was lowered into large shallow lighters, or punts, lashed alongside, and conveyed to the Greenland yards, the nearest of which establishments is about a mile up the river Hull, along whose banks a long street, the greater part of which is called Wincolmlea, extends the whole way. At these yards the operation of boiling—more simple than agreeable—is immediately commenced. The blubber, which, cut in small narrow junks, resembles fat pork, is first discharged out of the barrels into vats about ten feet diameter, the barrels having been previously hoisted up by a crane ; a succession of these large vats are placed one below another in the building, and, as the operation commences in the upper one, the oil, as it rises to the top, is drawn off into the next vat underneath, and so on, into the one still lower, till it becomes quite clear.

In an open space in the yard, men separate the layers of whalebone, which form one mass in the mouth of the animal, by an instrument like a broad

spud, used after the manner of a spade, wherewith the fleshy substance, which somewhat resembles, although rather of a softer nature, the sole of a horse's white hoof, and by which the laminæ adhere to each other, is divided.

The whalebone is then scraped by common knives by women; and the fibrous substance like horse-hair, through which the whale strains his food, is cleaned and applied to many of the purposes of horse-hair, such as the stuffing of chairs, &c.

Of a part of the offal glue is made, and the refuse afterwards pressed into a compost for manure, together with other ingredients; the larger bones are also reduced to sawdust for the same purpose. The stupendous solid jaw-bones, such as are frequently used to form an arched gateway, (and of which, by the way, at Whitby, several pair in a row, some curious boat-houses are constructed on the banks of the river Esk,) are first cut into lengths, by a cross-cut saw, and then applied to a circular saw an inch in breadth, having a double row of teeth. This instrument, beginning longitudinally at the outside, and taking an inch at a time of breadth, soon converts the whole piece to sawdust, which in that state, being nearly as fine as bones ground at a mill, is laid upon the land.

Large heaps of these bones may frequently be seen cut into lengths and lying together; and among them the huge fin-bones; the ball at the joint being as big as a man's head, and the piece altogether such as imagination might readily substitute for the thigh-bone of a Titan.

Vast quantities of animal bones are procured *via*

Hull from the continent. These arrive in bulk, and fetch about four pounds a ton. Entire cargoes of rags also are continually imported; the latter for the purpose of being converted, by a modern process, into new cloth at Dewsbury, as has been described in another place.

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In the latter end of June, the "William Darley," a large steam-ship for the Hamburgh trade, was launched at Hull, being the largest hitherto sent from the port: her length from stem to stern 156 feet; from the taffrail to the cutwater 174 feet; extreme breadth 41 feet 3 inches.

The circumstance which rendered this launch interesting was the extreme narrow space at command for the purpose. The vessel rested on her slips, on the eastern bank of the river Hull, exactly opposite the Old Dock basin: the breadth of the river was about 170 feet, and the dimensions of the basin opposite about 240 feet long, by 87 feet wide. The manœuvre was, nevertheless, performed with consummate skill, merely by the help of snap-ropes, or ropes of strength, intended to give way, but such as to oppose a powerful elastic force upon the first pressure, and thus relieve the heavy strain upon the main cables. It must have been an ecstasie moment to the individual who directed the operations, when the gallant vessel, restrained in her course by a stupendous opposing power, gracefully resting on the waters, thus testified her first act of obedience.

As if in contrast with this performance, another

ship-launch, on the same morning, proved in an equal inverse degree disastrous. A small schooner, propelled from one of the wharfs adjoining the Humber into the main river, went down, stern foremost, into the mud, and there stuck fast, while her bow remained poised upon the quay in a most awkward position. There was little edification in the causes that led to the accident, though the means adopted to repair it were remarkable from their simplicity. At low water, a couple of empty lighters were moored alongside, a strong chain being passed from one to the other under the keel of the schooner. Accordingly, as the lighters floated, and the chain began to strain, the schooner, after a little creaking and starting, gave a sudden leap forward, and rode upon the water. It is pleasing to observe a vast force, such as is afforded by two floating vessels, in all cases equal of course to no less than the amount of their tonnage, so easily applied; and the process is still more interesting, inasmuch as it is directed by human art, co-operating with the hand of nature.

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The service of a diving-bell is frequently put in requisition within the Hull docks. As the workmen happened to be raising it at the time I was passing by, I stepped into the lighter, in order to observe the state of the labourers on their return from below. I had a remarkably good view of their features, at a time when they had no reason to expect any one was looking at them, for, as the bell was raised very slowly, I had an opportunity of seeing within it by stooping, the moment its side was

above the gunwale of the lighter. A pair of easy-going, careless fellows, each with a red night-cap on his head, sat opposite one another, by no means overheated or exhausted, and apparently with no other want in the world than that of "summut to drink;" they had then been under water exactly two hours. I asked them what were their sensations on going down? They said that, before a man was used to it, it produced a feeling as if the ears were bursting; that, on the bell first dipping, they were in the habit of holding their noses, at the same time of breathing as gently as possible, and that thus they prevented any disagreeable effect; they added, the air below was hot, and made a man thirsty;—the latter observation, though, as in duty bound, I received it as a hint, I believe to be true; nevertheless the service cannot be very formidable, as the extra pay is only one shilling a day. Had there been anything extraordinary to see below, I should have asked permission to go down, but the water was by no means clear, and the muddy bottom of the docks not a sufficient recompense for the disagreeable sensation. Two men descend at a time, and four pump the air into the bell through a leathern hose; the bell is nearly a square, or rather an oblong vessel of cast-iron, with ten bull's-eye lights at the top, which lights are fortified within by a lattice covering of strong iron wire, sufficient to resist an accidental blow of a crow-bar, or other casualty. When the men work hard at the pump, the water in the bell rises about eighteen inches.

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The barbarous practice of "spinning a cock-

chafer," provided the tail of the insect be callous, and itself void of fear during the operation, is a less exquisite refinement in the art of tormenting, than to confine a poor squirrel in a revolving cage. If there be one method more efficacious than another to deprive it of liberty, it is this very contrivance, whereby, constituted the centre of a system, a governor of Barataria, do what he will, he never can possibly be in a state of rest—for, let him vary never so little, even for a moment, from his central position, everything begins tumbling about his ears. I have many times observed with pity the panting sides of an unfortunate little animal, its state of anxious tremor, in its hall of torment, its breath exhausted by galloping, kicking, and straining, worried and alarmed, without enjoying a single inch of progressive motion, or one refreshing change of attitude, for minutes together, within his tantalizing, turnabout treadmill. Some no doubt will say that the animal is happy, and that of exercise, the soul of nature, he has his fill. A man sitting out of doors in a thoroughfare, and pelted with mud, may believe himself hunting, or, lying on his stomach on wet grass, mistake it for swimming, as reasonably as a poor squirrel, in the midst of a whirling maze of wood and iron, can enjoy liberty and the delight of running;—the dog, confined by his chain, moves unmolested in a circle; the prisoner changes position in his cell; home is home, be it ever so homely; but if the house itself runs round, its homeliness surely is destroyed altogether. I was led to these reflections when, walking in the streets of Hull, a crowd of sailors were busily testifying their admiration and applause at some object of attention, by

rude, unrestrained laughter, accompanied by many seaman-like phrases. As I approached, in order to ascertain the cause of their mirth, I observed two squirrels living amicably together in a common wire cage, such as is used generally for a thrush or a blackbird, furnished with perches in the usual manner, and fixed at the outside of a house, against a sunny wall. As a snorting horse, bounding, tossing back his mane, and galloping backwards and forwards, underneath and among the trees of an apple orchard, presents a striking contrast with the heart-broken, over-laden brute of a sand-man, so at this moment did these squirrels, by the variety of their movements, show a comparison with the monotonous labour before alluded to, and afford an exhibition that highly delighted the sailors, as particularly in accordance with their professional tastes and habits. The little creatures evinced meanwhile a perfection of animal activity no less pleasing to the general lover of nature and friend of the creation ; each, no longer the immoveable centre of a circle, figured away in the periphery, and both together passed their hours in a state of happy companionship that baffles description. They threw summersets, ten or a dozen together, over each other's backs, and round the perches one after another ; and then suddenly they would stop and change the line of direction, passing each other contrariwise in the air, and forming, both together, while in rapid motion, a double figure of eight.

Let any humane lord and master or fair mistress of a squirrel try the experiment—let pity be taken upon the little shadow-tailed inhabitant of the woods ; let a new cage and a suitable companion

be provided; and they in return will regale the spectator with an exhibition sufficiently baffling the imagination of Ducrow, and display a combination of quickness, strength, and agility, such as no other earthly creatures, not even the Bedouin Arabs, possess in richer variety.

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Considerable numbers of rabbits are brought to Hull by the steamers from the Trent, the produce of the Lincolnshire warrens, called by the poulterers “silver-haired;” that is to say, black, with a sprinkling of white hairs, more or less, some almost entirely black, and others light iron-grey,—the feet a reddish brown. These warrens contain no other coloured rabbits; the silver-haired are a distinct race, as much *feræ naturæ* as the common grey; the fur, moreover, is of a better quality, and more valuable. I was informed of a fact, of which I have no reason to doubt, namely, that after the carcasses have been disposed of by the Hull poulterers, the skins are afterwards prepared and exported to Russia, there to be applied to the purposes of ordinary fur. On landing a cargo from on board the vessels, they are strung by the legs on poles, and put into carts; each cart contains ten poles, each pole carries a couple of score rabbits, making four hundred for a cart-load. Among several cart-loads I never saw a rabbit of a different colour.

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While at Hull I had an opportunity of seeing an establishment for the manufacture of white and red lead. I was struck with the extreme simplicity of

the former operation, merely that, of subjecting the lead for some days to the fumes of vinegar, raised by the agency of natural heat, by which process alone the carbonate, or white lead, is produced.

The first operation is to melt the pigs, to the end that the lead may afterwards be cast into those forms, best suited, by presenting a large surface in proportion to their weight, to allow the fumes of the vinegar to penetrate the mass. These forms are, in the first place, a thin sheet of six inches wide by eighteen inches long, which sheet is afterwards doubled in the form of a roll; the other form is either a star or a circular open pattern; both being prepared in order to suit the shape of the vessel in which they are to be placed. This latter is an earthen pot like a common flower-pot, having in the middle in the inside a ledge; the bottom part, below the ledge, being filled with vinegar: the ledge is made for the purpose of supporting the aforesaid leaden star, and upon the star is placed the roll, so that the upper part of the pot is filled with lead and the lower with vinegar.

The part of the building in which the next operation is performed consists of a range of open lofts, wherein the earthen pots, containing the lead and vinegar, are placed in order under a covering of bark, and there remain until all the vinegar has evaporated, and the lead is thoroughly transmuted into its new form. One entire layer of these vessels being uncovered, the pungent steam of the vinegar was particularly oppressive; it was really astonishing to observe the effect produced on the lead within the pots; the forms were entirely preserved, that of the rolled sheet, and of the star or open

pattern ; but the substance was altogether changed from its metallic appearance, to that of quicklime after it has been slaked with water, and the instant before it crumbles into powder : in short, it was then what is called white lead, the form and figure not affected by the change of substance, but considerably expanded in size.

The white lead is then ground and passed through a trough, having at the bottom a copper riddle ; it is thus sifted into other wooden vessels below, mixed and stirred about in water, and the mixture containing the finer particles drawn off by a pump ; finally, it is poured into earthen pans like those of a flower-pot, and exposed to heat, till all the water evaporating, and the white-lead remaining in the form of a dry cake, the latter is then re-ground and mixed with linseed oil for the use of painters.

The vinegar for the use of the manufactory is brewed on the premises ; the composition is treacle and water, suffered to ferment in large store vats, from which it is pumped into barrels, placed one above another in layers, under a temperature of eighty degrees of heat.

I had not so favourable an opportunity of seeing the manner of preparing the red lead. As far as I observed, the pigs are placed in an oven, the mouth of which is closely banked up with sand, and there they remain till they first melt, and then become oxydized.

The apartment containing the oven was very small ; two men were at work in it, engaged in stirring the red lead mixed with water in a trough,

while the ground was covered with fragments which, having been exposed to the fire, were vitrified, and of a greenish and orange colour.

I was informed that, in both cases, that of the red and the white lead, the original substance, instead of losing weight, gains by the process.

CHAPTER XVI.

H O L D E R N E S S.

Journey to Patrington—Exhausted State of the Land—Large Breeds of Horned Cattle replaced by small Scotch and Irish Stock—Magnificent Roads and Fields—Pole Waggons—A Bumpkin on Horseback—The Hilyard Arms—Corn Market—Ceremony of the Statutes—A social Squire—A Clockmaker's Dormitory—A Ride to Spurnpoint—Lighthouse—Woodcocks—Life-boat—A Ramble on the Beach—A wrecked Porpoise—Human Bones—A devoted Village—Kilnsea—Ruins of the Church—A Churchyard ravaged by the Waves—Exhumated Remains—Town of Hornsea—The Cliffs a concrete Mass of Fossils—Manifest Appearances of the Deluge—Corroboration by Heathen Testimony of the Mosaic Record—Submersed Forest—Sunk Island—Good drainage—Livestock scanty—Patrington Haven—A communicative Farmer.

THE outline of the coast of the Holderness country, as may be seen by the map, resembles a boar's head,—the town of Patrington, the metropolis, occupies its place in the snout, a neat country town, in proportion to the size of which the church is of magnificent dimensions. The distance from Hull, from whence one or two coaches depart every afternoon, and return the next morning, is eighteen miles.

On leaving Hull, the number of windmills that meet the eye together give a character to the flat range of country which constitutes this district; standing still in one spot, within a mile of the town, I counted no less than twenty-five, all of brick, beautiful structures, unusually high, and circular. This style of building is now so perfectly under-

stood, and the bricks so well made and assorted, that not the least detriment is experienced from the stress and jar of the machinery; in short, they are models of windmills, each with an ornamental cap or dome of wood, cast-iron wind-shaft, and fan-tail.

On entering the Holderness country, it is difficult to reconcile the idea of being on a narrow strip of land hemmed in on three sides by the sea, with the appearance of expansion created by the magnificent width of the roads and vast size of the fields; the whole of the level is moreover drained by wide cuts, which, though not so broad as the main drains in Lincolnshire, are, nevertheless, of unusual dimensions. As regards the roads, the parochial authorities appear unwilling to keep pace in liberality with the original projectors of the thoroughfare; for though the space between the hedges exceeds that of most turnpike roads in England, the carriage-way in the middle is hardly wide enough to allow two vehicles to pass abreast of each other. On both sides the green sward is regularly mowed and turned to account; the herbage at the same time hardly inferior to that of the pastures; even in the village pound rich clover springs up, and entirely covers the surface within.

In many parts, large quantities of lime are used as manure, and capital, where it exists, is distinctly marked, yet there is no part of England where the depressed state of agriculture is more observable. Generally speaking, the noble pastures are running out and going to ruin; indeed I was grievously disappointed in the condition of the land; for, instead of seeing the high state of agriculture I had anticipated, I found fields overrun with coarse tore grass,

in many parts blotchy and covered with thistles, and altogether in as striking contrast as can possibly be imagined with those excellent pastures on the other side of the Humber, in Lincolnshire ;—here a harsh, dry herbage ; there a soft, rich surface, thoroughly saturated and oily ; where sheep ticks and fat worms alone fatten many thousands of rooks. I had previously fancied I was about to visit a land celebrated for heavy cattle, a *Patagonia bovina*,—meadows from whence the stately Holderness cows, as the larger description of beast is called in the south, find their way into the London cow-keeper's stalls ;—on the contrary, literally, I never saw a handsome beast all the time I was here. In fact, for some time past, the large breeds have been almost wholly replaced by the small Irish and Scotch stocks, which lesser animals are found, in the present exhausted state of the grass, to answer the purpose of the farmer better. And I believe that now the larger sort would hardly be able, except on a few of the richer proprietorships, to ‘pick up a living.’

Although such is the temporary state of the land, there can be no finer picture of an arable district ;—spacious level fields, consisting of fifty, sixty, and as far as eighty acres, fenced by lofty, solid, impenetrable quick hedges,—the farm-houses, magnificent models of what a farm-house should be, according to an Englishman's taste, where substance, not shadow, is the criterion of beauty ; all these objects create vivid impressions in the mind of the stranger passing through the country. The farm-houses are indeed remarkable, for though the dwelling itself is of little pretension,—merely well-built and convenient, the outbuildings may be termed gorgeous :

embellished with a handsome cluster of stacks, and surrounded by a belt of thriving plantations, the whole together, seen from a distance, like a little village. The unusual breadth of the furrows in the enormous fields aforesaid, and the regularity and perfection of the quick hedges, contribute more and more to engender ideas of magnitude; and in addition to these appearances, the directing posts, placed at every rectangular crossing, are worthy, in point of size and the numerous list of places to which they refer, of the country about Staines and Hounslow.

The manner in which the pole-waggon is driven is not common. Each of these vehicles, the common waggon of the country, is conducted by a waggoner, who without the desire to imitate, in point of dress, the dragoon or jockey, nevertheless rides postilion; driving in this manner sometimes a pair of horses abreast; at other times four, or, now and then, unicorn fashion, three. This fellow, a heavy bacon-fed lout, rides the near wheel horse, sitting bolt upright on a saddle, provided as often with one stirrup as two, and frequently none at all; his costume, in the summer, is a straw hat, with a broad flapping brim, bound with green riband: he carries a large bunch of honeysuckles in his button-hole, and a whip, half gig, half carter's, holding the latter, as a soldier his musket, across his shoulder.

The corn market in Holderness is held once a week at the 'Hilyard Arms,' at Patrington, whither the cornfactors, three of whom entirely divide the country, arrive at four o'clock; consequently, during the winter, all the business is transacted by candle-light. Each cornfactor has a separate room at the

inn, so that the farmers go from one to another, in order to drive their bargains, as it suits them. Although on these occasions the ceremony of dealing is somewhat protracted, the buyers have the means of carrying matters pretty much their own way; in the mean time their visits tend to the good of the house, and, during market hours, produce considerable indications of business; the staircase of the inn all the time is a thoroughfare, whercon the farmers continually stúmp up and down in their heavy boots, with a sample-bag in one hand, and, not unfrequently, a glass of hot gin and water in the other.

These cornfactors possess large magazines at the small port of Patrington Haven, a mile distant from Patrington, at the mouth of a creek which communicates with the Humber, so that they have a direct water-communication with the vast depositaries of grain at Wakefield. In fact, these magazines may be called a branch establishment, tributary to that emporium. The village consists only of a few houses, in number inadequate apparently to the size of the magazines;—through the doors of the latter, nevertheless, almost all the corn of this fine district makes a part of its circuitous way towards the consumer.

The Hilyard Arms is a respectable country inn, bearing a family emblazonment for its sign, the latter with a Greek pun or joke upon the name, viz., *ἥλιος ημῖσι παντός*. I was rather unfortunate, on the occasion of my visit, to have selected unwittingly the day appropriated to the ceremony of the Statutes, or hiring of servants; for, consequently, the house was filled from top to bottom with drunken men, who nevertheless conducted themselves, though

noisily, with perfect good humour. Professedly none but respectable people were admitted to the public room, in which, there being no private apartment vacant, I took up my quarters. The company chiefly drank hot toddy, and smoked tobacco, some perhaps in conformity with periodical custom, and others because they found it agreeable. In the mean time, such is the diversity of tastes in the world, that among the party was one of the neighbouring squires; as I was informed, a wealthy man, who, having a comfortable house in the neighbourhood, somehow or other preferred, *pro tempore*, this clouded atmosphere to a more quiet retreat, and actually brought with him a couple of friends to participate, at the Hilyard Arms, in the recreation of a pipe and spittoon.

I retired to rest at an early hour, having, by the assistance of the landlord, procured an apartment in an adjoining house, the residence of a clock-maker, of whose profession I was not long doomed to remain in ignorance;—clocks were put up and going in every room of the house, as well as on the landing-place of the stairs; that in the room appropriated to myself was, unluckily, of powerful action, and regularly, during the night, announced the hour by a weighty hammer, while the buzz of the descending weight sounded as the warning of a rattlesnake, or the hissing of a boa constrictor.

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The distance from Patrington to Spurn Point, by the villages of Weeton, Skeffling, Easington, and Kilnsea, is a little more than twelve miles. Six miles of very good road, as far as Easington, are in an easterly direction; the same line then leads to

the coast, half a mile farther, whence, turning to the south, it extends a mile and a half over deep heavy sand along the sea-shore. Here the traveller leaves the circuitous bend of the coast, and taking a direct course across a few spacious arable fields, again arrives on the sea-shore at Kilnsea. Spurn Lighthouse is four miles beyond Kilnsea, the intervening land being a narrow barren ridge, a few hundred yards in breadth, and bounded by the sea on one side, and the river Humber on the other. On this ridge, for a considerable part of the way, rushes grow in abundance; and these afford a resting-place, delusive, or otherwise, as the case may be, for numerous flights of woodcocks on their first arrival in the country. On these occasions, the sport met with is, as I have been informed, of a very extraordinary description; not only from the number of the birds within so small a space, but from the nature of the cover, which encourages them to lie till almost trodden upon. The approach to the lighthouse is across a sand-bank, covered with hard turf, barely coloured with herbage, and perforated with rabbit burrows in every direction. The whole of this sand-bank, that is to say, every part exposed to the sea, appears to be receiving augmentation, rather than sustaining diminution, for it is situated upon a point of confluence of currents, where the contributions of soil are greater, on the average, than the quantity carried away. Generally, hereabouts, the ravages of the waves on the coast are considerable, in many places at the rate of a yard a year; however, as what is taken from one part is given to another, though the figure of the surface may be changed, the extent, after a lapse of years, probably remains

the same. At all events, the site of the lighthouse, for the present, seems quite secure; though, as a place of habitation, in dreary winter weather, at the end of a narrow spit of land, and menaced on three sides by the tumultuous ocean, the prospect must be dreary and awful.

The lighthouse is a circular brick building a hundred feet high, and contains a stationary light of eighteen Argand lamps, and one of coloured glass, all with plated reflectors.

The low light is contained in a wooden building, about a hundred yards from the other; the lantern, containing the lamps, moveable, so as to be let down or drawn up to the top.

A little distance at sea is the Bull-sand floating-light, which shows eight Argand lamps, and is moored by mushroom anchors.

Contiguous to the lighthouse is a cottage built for the residence of the captain of the Trinity-house life-boat, which latter, in continual readiness, floats close to the shore. A little removed, is a row of ten very small cottages, the abode of the crew. Each of these dwellings is provided with a square patch of barren land for a garden in front, and these, small as they are, are but half cultivated. The gardens of sterile soil, and fenced with dry sticks and old barrel staves, instead of embellishing, rather add to the desolate appearance of the spot.

There is one more tenement in the group, called an inn. Here the landlady produced a good collection of agates, and other fine pebbles, picked up on the adjacent shore. The landlord, aguish and rheumatic, though eatables were scarce, had in store abundance of liquid refreshment; however, all I

required was a feed of oats for the animal I had ridden, and of these there were none. On further inquiry, recourse was had to a sack of hard, small tick beans, a hat-full of which were accepted, with a grateful neigh, as a substitute.

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The village of Kilnsea, before alluded to, stands upon a projecting point of those low, soft, earthy cliffs, which, gradually rising from Spurn Point, here attain the height of about thirty feet. It was formerly, it is said, a town of some importance, but now contains about a score of houses; for the sea, by its inroads, has been long since carrying it fast away, and threatens, within a short period, to undermine and seize the remainder. As I approached it from the north, on my way from Patrington to Spurn Point, I thought I had never seen human dwellings so critically placed: the houses huddled together on a bleak, bare spot, unrelieved by surrounding objects,—a lone promontory on a crumbling foundation, against which the waves continually beat with a heavy swell; indeed the imagination can hardly picture a more abrupt and daring position. Before entering the village, and immediately contiguous, the road leading to it, in one particular part, had already gone; while, in a line diverging from the chasm, rails were set up to direct the course of the night traveller, and prevent him from walking on straightforwards into the sea. It seems extraordinary that people can endure residence on so precarious a tenure,—not that there is real danger to the inhabitant in keeping his post, for the cliffs yield at a regular progressive rate, affording sufficient warning of impending destruction; but be-

cause of the peculiarly melancholy reflection consequent upon living on any spot in the round world doomed to premature decay. Notwithstanding, hitherto such has been the apathy of the villagers, that many have rested quietly for weeks together, with the spray of the sea-storm rattling against their windows, and thus have remained till the ground has been torn almost from under their very beds.

As I rode through the village, I merely stopped my horse for a few minutes to converse with the people, intending, on my return, to view the environs with more attention; and after all, probably I should have returned to Patrington little less edified, had I not by a mere casual circumstance been led to inspect the ruins of the church.

On my way back from the lighthouse, along the narrow ridge of land before mentioned, the Humber on one side, and the sea on the other, I was within a mile of the village, when I observed a flock of gulls on the sea-shore, hovering over what appeared to me to be a dead cow; some, meanwhile, were busily feeding on the carcass. Being particularly fond of watching the habits and occupations of birds and wild animals, and striking off, out of my way, down to the beach, in order to ascertain what they were then dining upon, I discovered it to be an unusually large porpoise. The unwieldy stranger, allured by unlucky destiny within these shallows, had paid the forfeit of his temerity in leaving the depths of the ocean thus to visit the eastern coast;—whether urged by the universal passion of love in pursuit of a maiden monster of his own species,—cleaving the foaming waters sportively in the reck-

lessness of youth,—hurling the vengeance of his wrath upon a rival,—floundering and agonized by jealousy,—rolling over and over again in turbulent and testy meditation,—or, finally, whether in ignominious flight from an enemy,—to whichever cause his fate be attributable, at all events there he lay, dashed to pieces upon the hard rocks, a victim to the animal passions,—a black misshapen mass of putrid blubber. Three large gulls sat upon his swollen body, each of different species; like men of opposite nations, united from motives of interest, and eager to profit by his disaster. One, the large-sized gull, with a white neck and black wings; another of light ash colour; and the third, the brown speckled cob; all were pecking and pulling, and had so gorged themselves with savoury morsels as to be almost unable to fly away. The smell of the porpoise to me, on the contrary, was by no means attractive, the odour very wonderfully accelerated the desire to quit the spot, and as quickly as I possibly could.

I was at this time close to the sea, and though the tide was still flowing, there was sufficient time to proceed back to Kilnsea, along the beach under the cliffs, instead of returning the same way by the path I had left. Accordingly, throwing the horse's bridle over my arm, I led him along over the shingle, at the same time searching, as I went, for agates and fine pebbles, of which, on this part of the coast, there are a great many. I had not proceeded far, thus occupied, when among the pebbles at my feet I perceived a bone, apparently a human one, and a few seconds afterwards I saw another, and another still,—a leg and a thigh bone; till, last

of all, while I was reflecting on the sight, I picked up what was sufficient to dissipate all doubt as to what creature the bone belonged,—a human skull.

I could not readily reconcile to my feelings the act of leaving a poor fellow's skull to bleach on the sea-shore; yet, on the other hand, I knew not what to do with it, and as the relic was an inconvenient incumbrance, I did as one is apt to do in such a case,—I gave way to a chain of false reasoning by way of coming to a conclusion suitable to my purpose. It was but half a skull, and therefore without the other half no skull at all; the occiput had entirely disappeared, and the sinciput split into parts as I held it in my hand, so that the human form and semblance had actually departed. I, therefore, gently deposited the pieces where I had found them, satisfied my conscience by determining to inform the people of the village what I had done, and moreover told the first of the villagers I met, that the bones of an unfortunate seaman were lying on the shore. The reply I received in return for my communication, was such as immediately to intimate that human bones at the village of Kilnsea were as coal at Newcastle; and a further explanation induced me forthwith to give my horse in charge to a boy to hold, and to follow as a guide the man to whom I had now addressed myself, in the direction of the church that had fallen into the sea.

On arriving at this spot, I saw indeed a most extraordinary spectacle, and to the greatest advantage, inasmuch as the tide had not as yet sufficiently risen to prevent a free passage along the sea-shore below the cliff. In one large mound lay piled to a considerable height, the ruins of the

church ; large masses of the walls adhering closely cemented together, as well as fragments of the round spire ; the latest avalanches of earth, consisting of rich churchyard mould, in which were profusely scattered bones, skulls, fragments of coffins, remnants of garments, buttons, &c., were heaped, in some places, under the edge of the cliff, in height almost level with the summit. Already had the sea taken to itself the sacred edifice, and now the waves were tearing the churchyard fast away. The sight served instantly to account for the human bones I had seen upon the beach, and I was further informed by my guide that, frequently in addition to what I now saw, mutilated remains of shipwrecked mariners, necessarily from the state of decomposition in which they are usually found, interred in their clothes, made their resurrection from time to time in the course of the destruction of the cliff,—skeletons with silk handkerchiefs round their necks, and clad in other partial remnants of their garments.

The cliff at this spot was neither more nor less than the perpendicular section of a burying-ground, bones and skulls sticking in the soil after the manner of stones in a quarry, and the apertures of the graves appearing at regular intervals. For several minutes I remained fascinated by the horrible array in which these fragments of mortality were disposed, as the rapacious ocean, though doomed to suffer retribution in its turn, tore the dead and buried from their hallowed rest. It was a picture—*ossibus scatens* ; for, marshalled as it were in order, and menaced by the tumultuous ocean, rows of fleshless skulls, awaiting the extinction of time, grinned

stern defiance at the decree of fate, that thus prematurely disturbed their repose.

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The small town of Hornsea is a principal watering-place for the inhabitants of Hull and of the surrounding country. The inferior style of accommodation indicates that the primary object of its visitors is to enjoy the advantages of the healthful sea-breeze and bathing; for lodgings are only to be obtained in very small dwellings, and the two principal inns may be classed among ordinary public-houses.

Of all parts of England, the eastern coast displays the most apparent phenomena of diluvial action,—of all parts of the eastern coast that of Holderness,—and of all parts of Holderness, the country in the immediate vicinity of Hornsea. Here, the earthly cliffs form a concrete mass of heterogeneous matter, studded with shells and fossils;—seaward, a black line, or reef, of peat, resembling rocks, marks the ancient position of a forest below high-water mark, now washed by the waves of every succeeding tide. The most ample opportunity is afforded the geologist to enrich his collection of fossil curiosities, upon a line of coast where, for many miles, it is impossible to walk a yard without serious reflections, such as necessarily obtrude themselves on the mind, on reviewing manifest tokens of the deluge.

While it is evident, that here is the theatre of a violent convulsion of nature, it is curious to observe, how dark and impenetrable is the veil, on the mys-

terious history of the world, notwithstanding the recent advances of science, yet spread before human understanding ; and how trifling, in comparison with the lapse of ages that have intervened, is the portion of direct knowledge gained on the subject. With such a sight as the present before one's eyes, the mind, fortified both by Christian and Heathen testimony, gathers strengthened confidence on those sacred chronicles that in inspired language record the event. A modern author remarks, with reference to this identical part of the coast :—

“ The alterations in the form of land, occasioned by diluvial agency, must have been considerable, but are not yet well understood ; the operation of natural causes since that period deserves to be maturely considered, for these have materially changed the face of the globe. The lakes which were left, on the retiring of the diluvial currents, appear to have been continually diminished in depth, and contracted in extent, by deposits of vegetable matter, decayed shells, and sediment brought into them by land-floods. In this manner many inland lakes have been extinguished in Holderness, and nothing remains to denote their former existence, but the deposits by which they have been filled. It is remarkable that the observers of this coast have bestowed very little attention on the lacustrine deposits which appear so frequently on the cliffs, and exhibit, so convincingly, the proof of long lapsed time since the date of the fundamental diluvial formation.”—*Phillips's Geology of Yorkshire*, part I., page 25.

On the same subject, upwards of two thousand

years before, Ovid, in general terms, had thus expressed himself:—

“ Frigida pugnabant calidis, humentia siccis,
 Mollia cum duris, sine pondere, habentia pondus.
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 * * sic toties versa est fortuna locorum.
 Vidi ego quod fuerat quondam solidissima tellus
 Esse fretum; vidi factas ex æquore terras;
 Et procul a pelago couchæ jacuere marinæ;
 Et vetus inventa est in montibus anchora summis.
 Quodque fuit campus, vallem decursus aquarum
 Fecit; et eluvie mons est deductus in æquor.”

Ov. Metam.

For hot and cold were in one body fixt,
 And soft with hard, and light with heavy mixt.

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The face of places and their forms decay,
 And that is solid earth that once was sea;
 Seas, in their turn, retreating from the shore,
 Make solid land what ocean was before:
 And far from strands are shells of fishes found,
 And rusty anchors fixt on mountain ground;
 And what were fields before, now wash'd and worn
 By falling floods from high, to valleys turn.

To the submersed forest at Hornsea my attention was attracted by the appearance of the reef of peat before mentioned, of which I then gathered a handful, a substance which yielded like dough, and kneading it into a ball, retained it in my possession;—dry, it became uncommonly hard and sound, when cut by a knife, the divided surface assumed a polish such as made it difficult to distinguish whether it were wood or stone. As it exists in considerable abundance, it might perhaps be applied with effect,

either to the purposes of modelling, or other use, requiring matter soft and malleable when moistened with water, but hard when dry.

Besides the numerous specimens of fossils abounding everywhere, a great number, containing elephants' teeth among the rest, are to be seen at some shops in the town. Among these were some nautili of an unusual size—at the larger extremity as big as a man's leg; nevertheless I might have been the purchaser of this, or of an elephant's fossil tusk of equal dimensions, each at the small charge of ten shillings. Both being unportable, I left them behind.

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The large tract of reclaimed land at the mouth of the Humber, called "Sunk Island," is divided from the main land by a narrow creek, navigable for small craft as far as Patrington Haven. On the occasion of my present visit, ten large lighters, arrived for the purpose of carrying away grain from the cornfactors' magazines on this spot, already alluded to, having previously delivered their cargoes of coal, were resting on their quarters in the mud. Sunk Island seems to be the point whereupon the Humber, overcharged with the soil of the crumbling cliffs on the coast, and from the low, rich land traversed in its inland course, borne backwards and forwards by the waves at every tide, makes its grand deposit. The period of the island's first appearance was, I believe, about the time when those embankments of the Don which now contain the Dutch River, adverted to in a former chapter, were raised by Van Mudén, whence the drainage of that part of the country was rendered more perfect. An accu-

mulation of soil at the mouth of the Humber might have been in part the consequence of those operations; but whether it be so or not, I have no means at present to inquire. The extent of Sunk Island is now estimated at ten thousand statute acres, while the gradual increase appears to be about an hundred acres annually.

It is rather extraordinary, that notwithstanding the inconsiderable breadth of the creek, or water-course, before mentioned, there is no regular direct passage across from Patrington Haven—not even a wooden foot-bridge: people, in the mean time, avail themselves of a circuitous road, and that road on sufferance, unless when the tide is sufficiently high to make use of a boat. The long leases, under which the lands in the island were previously let, having now fallen into the hands of Government, the question of communication, long in abeyance, will soon be set at rest, and the point determined, as to which party is to bear the expense.

A single opportunity was afforded me of seeing the island, and I merely walked across it, unaccompanied by anybody; I was, nevertheless, particularly gratified by the good drainage that appeared on every side. The long, straight, ten foot ditches are indeed remarkable, extending point blank farther than the eye can distinguish, till they vanish in a point. As the tide was now low on the ebb, I was obliged to walk a full mile to the westward from Patrington Haven, before I could get across: then passing a small bridge, I came upon the main bank, which extends by a track, partly circuitous, the length of about six miles, to the shore of the Humber. The land on both sides of the main bank,

wild and solitary, resembles the larger tracts of marsh land in Kent and Essex. A stranger with difficulty finds his way towards the straggling patches of haystacks and barns; although the "Sunk farmers," as they are here called, like the farmers of other marsh districts, have abundance of plank bridges across the ditches, whose situation, as in similar cases elsewhere, is only known to themselves. Not being able conveniently to go from point to point, I was contented to restrain my course to the main bank aforesaid, on the top of which an excellent hard road extends the whole way to the great sea wall, washed by the Humber. On the outside of the sea wall there is an extensive salt marsh, evidently rapidly accumulating; in fact, several hundred acres of land are ready for inclosure: of the last plot, inclosed a few years ago, namely, eleven hundred acres, the greater part is still under the plough; and generally, although the pastures predominate in great proportion, I observed considerable quantities of arable land. The small number of cattle was particularly remarkable, compared with the extent of the pastures; indeed I never remember to have seen land so short of live stock,—neither were the few upon it looking well. The farmers, as regards the sheep, have hardly yet recovered, I believe, a grievous visitation of the rot: to this, the bad appearance of the cattle is partly to be attributed, as well as to the causes before cited, relating generally to the Holderness district.

I returned by the sea wall within a quarter of a mile of Patrington Haven, when, the tide being low, I had no other resource than to take off my shoes

and stockings, and wade across the creek up to my knees in the mud.

As I passed by the public-house at Patrington Haven, on my way back to Patrington, an old farmer sallied forth out of the door, and as he proceeded along the road, the way I was going, led his pony by the bridle. We accordingly entered into conversation, that is to say, that sort of colloquy, wherein the whole brunt of the discourse is borne by one party. His face, at a high state of temperature, showed him to be contented and happy; at the same time he was so extremely communicative, that within the distance of a mile I learnt much of his history. He said he had originally paid for his farm in Holderness twenty thousand pounds, and held another farm besides in Lincolnshire, on which latter, rented at five hundred a year, he had placed one of his sons. His landlord allowed an abatement successively from eight hundred to six hundred, and thence to the present rent; this without scrip or scroll;—he had fourteen children,—nine boys and five girls. Another boy had departed for America, with fourteen Whitby farmers; he had dispatched this youth, for the purpose of seeing and reporting on the country, for the benefit of the rest of the family, in case they also, or any of them, might choose to go; he had just then received a letter from America, giving a favourable account, that his son had engaged himself in agricultural labour at twelve dollars a week.

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CHAPTER XVII.

SCARBOROUGH—WHITBY.

Scarborough Castle—Compendious Arrangement of Museum—Antediluvian Monsters—Whitby Pier—Extraordinary trending of the Coast—Bridges—The Travelling Crane—Headlands—Old Church—"The Hill of Difficulty"—A Shoal of Sprats—Alum Works—Manufactory of Cement—Limestone—Diggers of Jet—Fossils—A Dealer in Saurian Remains—A Human Leg petrified—Robin Hood's Bay—Extortion of Innkeepers—A Marine Village—Periwinkles—Herring Fishery—Vareeh suffered to rot for want of means of conveyance—A self-taught Engraver of Epitaphs—Night's Lodging at York.

It is strange that, notwithstanding fashionable people have visited Scarborough these many years past, the place still retains the appearance of a primitive fishing-town. Red tiles, the old-fashioned pier, composed of misshapen, oversized blocks of stone, and the manner in which the fishermen, bringing their baskets of fish from the boat on their shoulders, pitch them out at the head of the quay on the hot, dusty pavement, like so much offal, are all indications worthy of by-gone centuries. Yet the noble castle, from its extent of wall, the loftiness of its site, two hundred and seventy feet above the level of the sea, and its antique proportions, is truly magnificent. After a hasty walk round the environs, I mounted the elevated cliff on which it rests frowning upon the waters, and found myself, instead of

among crags and precipices, on a flat surface of pasture land, with upwards of a score of horses grazing thereon, and containing an extent of seventeen acres.

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The Museum contains, in a circular building within small space, the most perfect arrangement of specimens that can be conceived. The fossil remains of former ages are disposed in order, on a series of sloping shelves placed all around, beginning with the recent formations, and proceeding, stratum after stratum, from the lower beds to the primitive rocks. Under the sloping shelves there are other horizontal ones, on which are a collection of shells in generic arrangement, intended to correspond with the fossils above. The diameter of this round chamber is only thirty-three feet: to render the *coup-d'œil* more complete, a coloured section of the stratification of the coast is painted on the ceiling, the same being coloured and numbered with a view to facilitate reference.

In an adjoining apartment I saw remains of antediluvian monsters in which this eastern coast is so remarkably fertile; one, a perfect specimen of the plesiosaurus, a skeleton, large as of a horse, embedded in a solid block of limestone and sufficient to strike the most sceptical with conviction, if not almost to incline the weak mind towards superstition. The bones of the plesiosaurus, the ichthyosaurus, the megalosaurus, and the Sussex iguanodon, in modern times render such testimony to our senses of the former existence of creatures now unknown on the earth, that we may wonder less at the fables and fictions of the olden day. Reason-

ably did the poet create in fancy the serpent Python, engendered of the mud of the deluge, and laid prostrate by the shafts of Apollo; and still more rational are the imaginings of more recent date, that is to say, the “Dragon of Wantley,” the “Worm of the Somervilles,” and the entire host of Spenser’s “Dracology.”

I saw horns of the bison, and elephants’ tusks from Holderness,—and lions’ and hyænas’ bones from the Kirkdale cave. Also a large Roman urn, dug up a few years since in the neighbourhood of Knapton, containing ashes and calcined bones in appearance as fresh as if newly burned. To these may be added the coffin and skeleton of an ancient Briton, dug up in the neighbourhood, in July, 1834, the former of solid oak, hollowed out of a tree, after the fashion of a log-canoe; the coffin-lid also formed in the same manner; both apparently parts of the same tree. The skeleton, singularly perfect, and black and shining as jet, is, as the exhibitor informed me, precisely in the same state in which it was found, otherwise than by the application of a colourless varnish.

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The head of the pier at Whitby is remarkable for its dimensions and solidity, notwithstanding that the structure has partially sunk in the middle, owing to a vein of soft clay which intersects the foundation. Considerable cracks and fissures are visible in the stone-work, unseemly to the eye, but not otherwise detrimental. Towards the lighthouse, at the head of this main structure, a smaller pier stretches from the opposite or southern bank of the Esk, at its mouth, at right angles to the former. A break-

water, inclosing considerable harbour space, is thus formed, although the water is always shallow, and at neap tides the ground quite dry.

Speaking of the southern bank of the Esk, though the definition cannot be mistaken, it is worthy of remark that the cardinal points at this spot on the coast are singularly according to appearances jumbled together, so that when a stranger, as he imagines, looks towards the west, the weathercock informs him his face is to the south; and so of the rest. It was to me at least an unexpected sight to see the sun, on a fine evening in the beginning of July, sink into the waves, while standing on Whitby Pier; but that I did see, as anybody may readily comprehend, by observing on the map the trending of this part of the coast to the westward.

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A mile up the river a wooden bridge has been thrown across for the purpose of the railroad now under progress towards Pickering, and of which latter about seven miles are already completed; it is strong and simple, and in length a little more than a hundred yards. A new stone bridge has been also recently completed in the centre of the town;—a horizontal swing draw-bridge, forty-six feet from pier to pier; the entire length of the swinging platform ninety-six feet, that is, forty-eight feet each limb. Although the Esk runs itself nearly dry at every tide, there is a considerable depth of water at flood; immediately above the bridge is a spacious bay, where, at a comparatively small expense, docks might be made to a very considerable extent;—in fact, the piers of the bridge appear to have been constructed with an ultimate

view thereto, and calculated to support gates of adequate dimensions.

During the last summer I happened to see the workmen engaged in constructing the starlings; meanwhile they were protected by a temporary dock, from which the water was pumped out by a steam-engine. I observed the mode here adopted to lay in their places, with the utmost precision, huge blocks of stone, three tons weight and upwards, the surface of each being a different figure, and all neatly jointed and riveted together.

By a contrivance, called "a travelling crane," a couple of men were enabled to lift these large stones out of the lighter alongside, and lower them down to the masons at work below.

To effect the above purpose two large beams were, in the first place, raised longitudinally outside, and several feet above, the starling under operation; on their upper surface were laid a line of iron rails. Two transverse beams, lashed together, were placed on the top of the others upon casters, so that the latter were easily moved backwards and forwards along the railway. Upon the transverse beams the crane was placed, which crane moved also in a similar manner by casters, and on a railway. Thus, to move the crane across the starling, it was merely trundled along the transverse beams; to move it in a line lengthwise, the transverse beams, crane, and all, were trundled along the longitudinal ones; creating thereby an operation in the highest degree perfect: for not only did these two horizontal motions, at right angles to each other, command every possible point on the surface, but with equal nicety the perpendicular adjustment was regulated by the

crane, by which the appended weight was raised and lowered. By aid of multiplying wheels and a brake, the action was so extremely delicate, that every single stone might literally be said to be placed as gently on its bed as a sleeping infant in its cradle.

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Few spots in England afford more bold and romantic scenery than the heights about Whitby. On either bank of the Esk, all the overhanging mountainous acclivities are thickly studded with houses rising one above another, as if built on each other's tops ; and the bluff headlands at the mouth of the harbour, diverging towards the sea, afford in either direction along their summit a delightful walk for several miles. The ancient ruins of the abbey, and the venerable old church, form other striking features in the landscape.

Leading to the church a broad flight of one hundred and ninety-four stone steps has of late years been built, contiguous to which the ancient zigzag paved road still remains undisturbed. These steps may be seen every Sunday covered from top to bottom with old and young,—parents at the decline of life, children at its commencement,—both together surmounting the arduous ascent, and wending their way to the sacred edifice ; thus piously dedicating the first fruits and withering remains of mortal strength to their Christian duties. I was forcibly reminded, on such an occasion, of Bunyan's beautiful allegory of "The Hill of Difficulty."

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Early one morning at high water, the sea within the pier was swarming with a shoal of sprats, whose

line of march I distinctly traced not only from the clearness of the water, but by the ripple caused on the surface by their vast numbers: I could plainly see them as they glided along in a dense busy mass, of length apparently unlimited, breadth thirty or forty feet, and depth seven or eight feet. As they continued to swim round and round in the harbour for near an hour, the water tingled with myriads of the passing throng; hundreds of which together would, at times, in a sudden flurry, leap out of the water, and descend again in a glittering shower; meanwhile the course of the main body, at a distance, was marked by the sparkling of the sun's rays, here and there reflected: like so many little diamonds from their silver scales. Not a net was put in requisition, though at least a waggon-load might have been taken easily. In the first place, the fishermen were provided with none with meshes small enough; in the next, they were busy with their herring-fishery. The draughts of herrings this year have been unusually great,—so much so, that large cargoes have been frequently sold to the French fishermen, who bring their own salt and cure them on the spot, at eight shillings a thousand. The number of boats employed in the trade on our own coast is still increasing, and preparations are making for a further augmentation by building “curing-houses” near the pier.

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I walked along the edge of the cliffs to Lord Mulgrave's alum-works, to the northward, close to the sea, about three miles distant, where the extent of the excavations, and the magnitude of the heaps of alum-rock (or shale as it is called), then in a state

of smouldering combustion, produced a magnificent effect, such as I had not anticipated. The scale of operations may be partly imagined by those who have chanced to see the chalk and lime works on the Thames at Northfleet: the cuts, several feet in thickness, are commenced at the top of the cliff, here one hundred and eighty feet high, and then worked down perpendicularly to the bottom; and thus, by degrees, a vast portion of the material has been scooped out, leaving, as it were, an extensive irregular semicircular bowl, the area of which is the theatre of operations, and in appearance truly volcanic. The blue colour of the surrounding cliffs of alum-rock, the burning mountains below, and the whole scene, round and about, is such as, when seen from the summit, give the whole together the character of one enormous crater. At all parts workmen are seen driving their loads in wheelbarrows, sometimes across rude bridges and planks, perilously planted from one precipice to another; or along narrow ledges of rocks, and platforms supported by rough blocks of stone.

By such a path as the latter I descended for the greater part of the way from the top of the cliff to the bottom, stepping from stone to stone, in some places laid in imitation of a flight of steps.

The process of preparing the alum is sufficiently simple. After having quarried the shale, which, from the softness of the substance, is performed without much difficulty, it is piled in the enormous heaps before mentioned: these, being ignited, burn for several months together, till the whole is reduced to a red calcined ash or cinder. At the commencement of the formation of each fiery mountain,

a nucleus is, in the first instance, created by a layer of faggots or bushes placed on the ground, and set fire to. On these is thrown a layer of the alum-shale. As soon as the latter becomes red-hot, a second layer of shale is placed upon it, upon which the workmen stand, and supply from the rear with alum-shale a second layer of bushes placed in front. Thus the heap extends, by layer after layer of bushes in front being fed with stone brought from the rear; and, as the heap increases in height and dimensions, the material is wheeled across the top, from one end to the other, in wheelbarrows, and shot over from the summit upon the new-laid layer of bushes in front.

I mounted to the top of one of these huge heaps, twenty feet from the ground, and containing an area of several hundred square yards, following the men who wheeled their barrows along planks laid from end to end, and pitched their contents over the summit, as has been described.

How it is possible for a living creature to exist and work in such an atmosphere, I do not comprehend, for the fumes of sulphur predominate in such a degree as almost to stop the breath. Such is the pestiferous effluvium which arises, that the edges of many deep fissures are abundantly fringed with flower of sulphur; and as the smoke and steam ooze upwards the air trembles in the sunshine, as may be observed in a field of burning bricks. Nay, besides the appearances above stated, red heat is not only visible through the cracks in many places underneath, but by merely scratching a few inches with a stick below the surface may be discovered glowing

everywhere. Even with so shallow a covering, the part that comes in contact with the feet is cool.

The shale being reduced to a calcined mass, and allowed sufficient time to cool,—in order to extract the alum, the ashes or cinders are immersed in water in shallow tanks cut in the ground, like salt-pans; from which the liquor passes away by a channel cut for the purpose underground, full half a mile in length, to the boiling-houses.

The liquor is here boiled in several large caldrons one after another till the water, having sufficiently evaporated, it is poured into barrels, containing three hundred gallons each, and then allowed to cool. As it cools, the crystallization takes place; the crystals adhere to the sides of the barrel, the water settles in the middle, just as the milk lies within the cocoa-nut, and the nut cleaves to its shell. When cold, the barrels being purposely constructed to take to pieces, the hoops and staves are removed, and the crystals remain in a solid mass, the usual proportion being two-thirds of crystals to one-third of water. A hole is bored to let the water off, and the alum cut with a saw in blocks for the market. On an aperture being made in one of these masses when entire, the crystals within assume, as may be readily imagined, a splendid appearance.

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Between the alum-works and Whitby, there is adjoining the sea-shore, a manufactory for cement, prepared from a peculiar sort of stones or boulders, found imbedded in the alum-shale: the process merely consists in burning the stones in a kiln, and

then grinding them. Nearer still to the town are lime-kilns, whither the white limestone is brought from Flamborough Head. The stones, all round and smooth, taken from below high-water mark, are shot from the vessels which bring them over-board into the sea at high-water, as near the land as possible, whence they are carted, at low-water, to the kilns.

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As I was walking along the summit of the cliffs on the other bank of the Esk, in a direction southerly, as applied generally to the coast, but in point of fact easterly, more properly speaking, I heard that some men were digging jet a few miles from the town, and therefore proceeded in search of them. I was in the end only partially successful, for I met with the men and I saw the jet, but I did not see them, as I wished, in the act of digging it. I came to the spot where they were at work, but they were at the extremity of a level, driven under the verge of the cliff, so that I had an equal chance of detecting a sea-bird sitting on her eggs, as of discovering these men pecking at the rock within their burrow.

Returning to the town I encountered them on the way, one with a narrow sack of jet on his shoulder, which each took it by turns to carry. They opened the sack and showed me the jet, in pieces the size of ordinary charcoal; they said they were miners by trade; that they rented the ground where they worked on speculation; that the tradesmen in Whitby gave them a fair price for all the jet they could furnish, and manufactured it into ladies' or-

naments; that the price varied considerably—from 3*s.* 6*d.* to 10*s.* per stone.

The jet is found among the cliffs in very narrow seams, not more than two or three inches deep; consequently the work is performed in extremely narrow space; almost in a recumbent posture, and the rubble and earth dragged outwards on the hands and knees, by a rope round the middle, after the manner adopted by the colliers in the narrow seams of coal. It frequently happens that the workman is lowered over the edge of the cliff, in order to reach the mouth of the level by which he enters. A man very often not only works alone all day in such a gloomy state of confinement, but reaches his solitary dungeon without assistance, merely by the perilous expedient of a rope rove round a stake fixed on the summit of the cliff: by the rope he lets himself down, and at the end of his day's work pulls himself up again.

At the spot where these men were at work, the cliffs are two hundred and eighty feet high, and form a bight to which sea-birds resort in considerable numbers: though I had probably arrived within a few hundred yards of the place I was seeking, without further information, there was no visible object to direct my search.

As the crow flies, the point in question is not more than three miles and a half from Whitby; by the cliffs the way amounts to about five miles: thus as I sauntered along I occasionally descended to the level of the sea, and walked sometimes, as far as was practicable, along the shore. The whole of these cliffs, viewed from below, present a wonderful

accumulation of fossil substances, among which, of the nautili, or "snakestones," as they are provincially termed, I might easily, in a couple of hours, have filled a wheelbarrow. The country people suppose them snakes, and assert, as a matter of curiosity, that "no one has ever yet been found with a head." Some lie rolling about among the shingle, like common boulders, others are imbedded in fragments of alum-rock, and some are found mingled among the earth; but the entire precipice from top to bottom is a mass of shale, shells, and stones, disposed in layers, distinguishable one above another, as if each layer had grown year after year, as the strata of wood in an ancient tree.

It is remarkable that, for a considerable space hereabouts, the sand of the sea is entirely composed of pulverized ashes of alum-shale, the refuse of old works on the spot, but which have been many years abandoned: it has precisely the appearance of pounded tiles, and, although carried by so many succeeding tides backwards and forwards, is still quite pure and unmixed with any other substance.

As I walked homewards towards the town with the two diggers of jet, one of them informed me that a friend of his had in his possession a fossil monster, as wonderful as anything in Whitby museum; so accordingly I proposed going immediately to see it. I was conducted to a small house at the upper end of an alley, in the garret of which, extended in order, on the floor, were the fossil bones in question. These bones, as far as I could discover, might have been, the greater part, those of a small whale; but the poor owner, partially acquainted with the Saurian tribe, had determined accordingly

on one of these for his model; and had collected vertebræ, at all events decreasing in size, and sufficient in number to form, properly distributed, a graceful curve, and outline of a creature possessing, when alive, a long switching tail. The head, for aught I know, might have belonged to an ichthyosaurus, as well as many of its component parts: the arrangement, at least, did credit to the owner's fancy.

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This was not the only exhibition of the same sort at Whitby. At a highly-respectable tradesman's shop there was what was said to be a human leg petrified; but which bore, I think, very little resemblance to any such member. There was nothing whatever, that I could perceive, to justify its having ever been mistaken for a man's leg, bating that, in the mere outline, it bore somewhat the appearance of a very particularly bad one.

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I afterwards visited the museum, wherein the specimens are imperfectly arranged, and the exhibition is altogether on a small scale; though it contains probably the very best specimen of antediluvian remains at present in England. Of the enormous skeleton of the ichthyosaurus almost every bone is perfect, particularly of the small ones composing the feet; of these, even the nail, or claw, is, in one instance, perfect.

Among the fossils is a complete plant of sugarcane, or bamboo, dug up from a spot close adjoining where the ichthyosaurus lay. This, as well as relics from the Kirkdale cave, superior to those in the museum either of Scarborough, Hull, or York,

bears ample testimony to the violent natural changes which, in past ages, have taken place in the upper strata of this eastern coast.

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Partly with the object in view to visit this little fishing-town, and partly for the purpose of escaping the vortex then setting in from all surrounding quarters towards the York festival, I left Whitby one rainy afternoon, in a hired buggy, for Robin Hood's Bay. It was not without considerable reluctance that, yielding to other pursuits, I compelled myself to relinquish the pleasures of sight and sound attendant on this ceremonial; I was, therefore, more unwilling to witness the tantalizing preparations. On such occasions as these, Englishmen by no means appear to advantage; for, to say nothing of the trickery exercised by coach-proprietors, innkeepers also take an opportunity of reaping the harvest of their servility, by exacting from the public usurious remuneration;—a reflection which certainly tends to diminish the value of their attentions. At all events, a traveller is doomed among them to encounter a hard-hearted band, and even though the money fly from his pocket, like the nails in Sindbad's ship on the rock of adamant, he is nevertheless curtailed in his comforts in a similar proportion.

The approach to the village of Robin Hood's Bay is by a steep descent, which, commencing at the parish church and extending a full mile, becomes for the last three or four hundred yards so precipitous, as to be all but inaccessible to wheel-carriages of any description; so that the inhabitants may be

said to be secluded, by local causes, from the adjoining country.

Having taken no pains to inform myself of the disposition of the villagers, it was with some hesitation that I dismissed my vehicle at the door of the principal inn, being led involuntarily, owing to its small size and the appearance of the street, to question its respectability. But a more kind, respectable, well-conducted, and amiable person I never encountered, than my hostess of the *Mason's Arms*; under whose tranquil roof I sojourned for two days, and then departed with regret.

No place of human abode can be conceived more wild in its appearance than this village, where the tidy little edifices of the fishermen are perched, like the nests of sea-gulls, among the cliffs; the communication from one street to another, in some places, is so entirely cut off, that access is obtained by a plank bridge thrown over a gully. Every individual dwelling is characteristic of the neatness of a seafaring proprietor, him whom early habit has taught the true principles of the economy of space, and whom the contrast of rough and perilous hours abroad the more endears to the delights of home,—among such a population, I had no reason to repent my visit. Such is the precarious position of many of the houses among the craggy eminences, that one is inclined to wonder they have not long since been washed away. Twenty years ago a considerable number were abandoned, and afterwards actually swept off by the waves; and now the sea has undermined the rocks in many places under their foundations to such a degree, that, with an in-shore swell, the sound of the tumbling waters

resembles a distant discharge of artillery. These cliffs, formed of the deeper lias shale, afford a better resistance than those of loam, which support the devoted town of Kilnsea, elsewhere described; nevertheless, the whole shore within the bay appears of the same substance as the cliffs above, the flat surface being worn smooth by the attrition of the waves, and divided by longitudinal and transverse fissures, so as exactly to resemble an artificial pavement. The entire area is covered by multitudes of periwinkles of unusual size. In every part these shellfish are scattered in the utmost profusion—so that the only pains necessary to gather them is to sweep them with a common broom into a heap, and carry them off; and in this manner, in the proper season, boat-loads are collected and sent to Yarmouth. The herring-fishery here, as well as at most other parts of the coast, affords the principal source of livelihood for the inhabitants, and has been, during the present year, attended with unusual success: large quantities have been sold to the French fishermen, who bring their own salt and cure them on the spot, as at Hartlepool, Whitby, and other places.

I observed vast quantities of vareeh or sea-weed on the beach, which, notwithstanding its efficacy as a manure, was suffered to lie and rot, swarming with maggots; however, the steepness of the ascent to the fields above, renders it perhaps impracticable to cart it thither. It occurred to me that, in instances like the present, when it is required to surmount a short and steep acclivity, the substitution of a mechanical purchase for horse power is seldom applied, though it might be used to advantage: for instance,

in the steep streets leading from the Thames in London, the whole length of the Strand, and eastward, as well as in many other places that might readily be mentioned. At all events, the quantity of manure that here lay unapplied to useful purposes, within the space of three or four hundred yards, was at least forty waggon-loads.

On leaving the village, I engaged the service of a man and his cart to transport my luggage to a point of rendezvous, on the turnpike-road, with the stage-coach to York; and as the old horse leaned steadily on his collar, I walked up the hill, and entered into conversation with the proprietor. My companion was intelligent and inquisitive, all his numerous questions tending directly, one way or other, to increase his little stock of knowledge: he was besides, not only a self-taught artist affectionately devoted to his profession, but a poetaster, possessing at the same time an enviable privilege,—namely, provided all the world were deaf to the harmony of his rhymes, the means of ensuring their immortality. By his hand many of the tombstones in the churchyard were engraved, and though I will not venture so far as to criticize the literary merit of this composer of epitaphs, or in any wise interfere with the department of the Muses, I may honestly assert that better specimens of handiwork, even in more civilized parts of England, are not to be found.

On proceeding on my journey, I in due course made the discovery that I had unwittingly arrived in York precisely one day too soon: the consequence was just what might be expected,—no quiet, no comfort,—the inn, from top to bottom, a scene of

bustle and confusion. When I took my seat in the coffee-room, a group of bacchanalians, "far in the wind," vindicating their musical taste at the expense of the public, levied contributions from every individual indiscriminately in favour of a trumpery set of glee-singers then standing in the street: they in return, the windows wide open for the purpose, vomited forth "The Hunters' Chorus" in "Der Freischutz," and all the worn-out trash of the London streets.

My place of rest was a delta chamber in the garrets. Here the noise in the house was sufficient effectually to prevent sleep for the whole night: nevertheless, no sooner were the set of people who produced it, worn down by fatigue and silent, than replaced by others. Three sturdy fellows began at day-light, both in the adjoining chamber, and in the landing-place close to my door, to black shoes for all the household. For a night's lodging, that of a traveller merely passing through the town, the charge was precisely, compared with that on ordinary occasions, tenfold.

CHAPTER XVIII.

STOCKTON-UPON-TEES.

Road from Whitby to Stockton—Unexpected Changes of Scenery—A Musical Exhibition—An Infant Audience—A well-educated Monkey—Coal-shipments on the Tees—Town of Middleborough—Quaker's Railroad—Clarence Railroad—Suspension Bridge—Anecdote relating thereto—Coal Staiths—Description of a Coal Staith—Curious mode of letting down the empty Waggon.

THE road from Scarborough to Whitby is, perhaps, the worst in all England,—neither from Whitby to Stockton is it much better: the greater part stretches across a moor of high elevation, and rolling stones and deep sand render progress dangerous as well as difficult. More exhilarating is the sensation when, a few miles before arriving at Stockton, the prospect suddenly brightens, and from a commanding eminence the vale of Cleveland bursts on the view. The river Tees, here below, gracefully winds its course towards the sea; and on its opposite banks, four miles distant from each other, are the two towns of Stockton and Middleborough. Both, as objects in the landscape, are in equal proportion attractive to the eye: yet the latter, fast increasing in extent and importance, has within a few years only been called into existence.

Unlooked-for changes of scenery are sweet among fortune's vicissitudes; as the light of hope upon the mind, not only rendering sparkling and verdant the path of the future, but illuminating the darker vaults

in the depths of memory. As the coach rolled on at a rapid pace towards Stockton through this noble country, the fertile scene called forth a series of pleasing influences; till, arrived even at a noisy inn, imagination alone had embellished the objects round and about, and rendered them, for the time being, agreeable to the senses. Above, a huge black lion, carved in wood, brandished his tail at the outside of the window; below, the broad airy street was the rendezvous for stage coaches.

On an evening particularly serene, my attention was arrested by the dulcet tones of music;—an Italian boy, with his monkey and organ, was exhibiting to the younger classes of the community: the musician, though a foreigner, contrived to fascinate by means of his organ, and a string of good old-fashioned English tunes, a mob of at least thirty or forty little children, and with hardly a big one among them all, were pressing around him to listen.

It was pleasing to observe the animation of countenance displayed by the very least of the infant crew, as, with eager and intuitive love of harmony, they crept closer and closer to the feet of the young artist, stretching out their arms as if to feel for the notes among the ambient air, and evidently confounding in their minds things visible and tangible with the sensation of sound. I almost felt as if all these little children belonged to myself; and that, too, without the inconvenient drawback of paternity.

The monkey performed with *éclat* his part in the drama; for he picked up a sixpence when thrown on the ground, and presented it to his master. And then, like the rest of the world when paid for

it, he exhibited his gratitude; that is to say, he pulled off his cap at a jerk on his weasand, which jerk very nearly shook the cap off, head and all.

Whatever craniologists may predicate of Jacko's forehead, if breadth be an earnest of sagacity,—therein is wisdom; moreover, on his ruminative countenance dwells content and consciousness of worldly dignity. How many people in the world value themselves highly even on more trivial grounds, for, seated on the shoulder of his master, he receives daily offerings of dainties from donors he never saw before, the reward of sheer merit; his pliant limbs are unassailable by gout or rheumatism; he possesses splendid teeth, a never failing digestion, and, above all things, enjoys the faculty of executing and uttering daily tricks and pleasantries intelligible to the meanest capacity, appreciated by old and young, the fool and the philosopher;—the which latter of mortal blessings, namely, to hold in absolute control the good humour of the multitude, falls not at all events to the lot of his betters.

* * * *

The mouth of the river Tees is an interesting point on the eastern coast; by which the coal monopoly has been principally wrested from the Tyne and Wear; and whence coal-fields, which, but for the discoveries and improvements of modern times, would have remained undisturbed these fifty years to come, have been compelled to disembogue their produce for the London market.

These local operations have chiefly been effected by the people called Quakers, to whom the town of Middleborough especially owes it birth. “The Quaker's Railroad,” as it is termed, upon the north

bank of the Tees, extends from their coal-field near Darlington as far as Stockton, where it crosses the river by a suspension-bridge, and then proceeds four miles farther along the southern shore straight to Middleborough. The "Clarence Railway" reaches from the neighbourhood of Durham to a point on the north bank of the Tees, somewhat lower down the river than the former: hence the proprietors, though not with the energy of the other establishments, are now making shipments.

The following anecdote relating to the suspension-bridge across the Tees, before mentioned, forms a part of its early history:—

The number of coal-waggons which now pass over it, linked together, is almost indefinite; at all events, the trains cover the whole surface of the platform, and ground on both banks of the river besides. When the bridge was completed on the suspension principle, it was found, by previous experiment, not to be strong enough even for twenty waggons, the number then stipulated for. The first trial was made with sixteen, upon which the bridge gave way; that is to say, as the sixteen carriages advanced upon the platform, the latter, yielding at first to their weight, became elevated in the middle, so as by degrees to form an apex, which was no sooner surmounted by half the number, than the couplings broke asunder, and eight carriages rolled one way, and eight another,—the one set onwards on their way, and the other back again. Owing to this misadventure, the construction was necessarily altered. The platform remaining suspended, as before, was fortified underneath by four starlings, upon which it has been ever since supported, and, consequently,

the stress on the chains is so effectually relieved, that the platform assumes a convex appearance.

By pacing the platform, I found it to be one hundred and four yards in length: it swings on twelve chains, six on one side and six on the other; the circumference of the links of the chains is six inches and a quarter; the number of perpendicular rods, of three inches and five-eighths circumference, are one hundred and ten,—fifty-five on one side and fifty-five on the other. As the trains of coal-waggons cross, the whole space appears covered by about five-and-twenty; the train being longer considerably than the bridge.

A train of coal-waggons, touching close together, and motionless on a railway, occupy about ten feet of space each waggon; moving, and at the extent of their couplings, considerably more; the weight of an empty coal-waggon is from 26 to 30 cwt.—the load 53 cwt., or a Newcastle chaldron,—the weight of the engine, eight tons; consequently the weight laid on the bridge at present is more than an hundred tons.

* * * *

Even to those who delight in the relics of antiquity, the nascent town of Middleborough may afford matter for rumination; by placing the prospective for the retrospective, the same feelings are conversely brought into action, while the sympathies are engaged perhaps more profitably, among the expanding element of youth than the withering features of age.

The town of Middleborough on the Tyne, as well as Goole upon the Ouse, has not yet, generally speaking, been laid down on the maps; neverthe-

less, in addition to the coal-waggon from the Darlington pits, of which frequently not less than three hundred may be seen together at the staiths, a communication by steam for passengers has been also established with Stockton: and trains of carriages have departed and returned thither, for these twelve months past, regularly six times a day.

Having crossed the old stone bridge over the Tees, close to the town of Stockton, I took my seat on one of these carriages, and was deposited at Middleborough in about twenty minutes.

The extraordinary length of the building appropriated to the coal staiths, four hundred and fifty yards long, or thereabouts, by means of which all the shipping operations are conducted close to the water's edge under cover, renders it, at first sight, a remarkable object, and the more singular inasmuch as the laden coal-waggon are, in the first instance, raised by a steam-engine to the upper floor, and then lowered again to the vessel below,—a circuitous application of additional labour, than which it certainly appears a more direct mode might have been devised.

As many persons have never even heard of a coal staith, it may be here observed that a coal staith merely signifies a raised platform, from which the cargo is discharged into the vessel or carriage below: this operation was for many years performed by means of an iron spout, about three feet in breadth, as a channel to direct the coal in its descent. The violence of the fall, however, by the above mode, caused such considerable damage and breakage, that it became indispensable to determine upon a better expedient. Accordingly, about a dozen years

since, or more, the said spout was in many places superseded by the drop, the latter being a contrivance whereby the laden waggon, placed on a cradle or frame, with a man beside it, is daintily let down by machinery within a few feet of the hold of the vessel, where a bolt being struck out, the coal immediately falls through the bottom of the waggon, which latter is then bodily lifted up again.

Within this building are contained eight drops, constructed as aforesaid, and along the whole length of the upper floor a railway extends in the middle from one end to the other, viz., four hundred and fifty yards. Cross rails are laid down at right angles leading to the several drops, and others towards opposite windows or openings, out of which the empty waggons, as soon as unladen on one side, are let down by a separate apparatus of machinery through the other into the yard of the establishment. Notwithstanding these sixteen windows, the inside of the building, owing to its length, is nearly as dark as a coal pit.

The waggons, as they arrive from the pit, are, in the first instance, as has been observed, raised to the upper floor by a steam-engine: one is continually at work for the purpose, and the proprietors are also provided with another, to the end that they may be prepared with a second in case of the first being out of order. Half a dozen laden waggons are dragged together along the railroad to the particular drop then at work by a stout cob, which is then ridden carelessly back again barebacked, by a small boy, at a shambling trot, notwithstanding that the interstices between the planks admit here and there full two inches of daylight. However, the

pony proceeds, clattering on unconcernedly, otherwise than holding his nose close to the floor, the better, and more cautiously, to observe where to place his feet at every step: and thus with horses generally; the less the rider thinks of himself, the more care they take of him. The beast, when I witnessed his performance, had only a halter on his head, without blinkers, or any harness except collar and light rope traces. As soon as the boy had fastened the hook of the trace to the foremost waggon, the pony invariably turned round his head, as if to inquire whether all were ready, and then exactly at the proper moment commenced his march, the load meanwhile rumbling after him; arrived at the drop, the carriages being detached, he here stood jammed close to the wall; showing perfect cognizance, as the carriages passed him, of the degree of attention due to the various noises and manœuvres going forward, and not only being aware when it was proper to step out of the way, but how long precisely it was safe to stand still.

The better to describe the celerity and adroitness displayed in lading the vessels from the drops, a further illustration of the machine may be afforded by an object familiar to everybody,—that of the vertical roundabout, commonly adapted to the amusement of children at fairs, where a small carriage performs a circle in the air, as it swings between two parallel levers. Each carriage at one extremity of a diameter is here counterbalanced by the carriage at the other extremity: thus, precisely in like manner, the frame or cradle, with the waggon and man upon it, swings upon an iron bar, laid across two parallel levers at their extremity. As it

descends it is counterpoised by heavy weights,—pigs of iron weighing about four tons; which, the coal being discharged in the hold of the vessel, cause the waggon and platform to ascend, as it were spontaneously, by restoring the equilibrium; the motion, during the previous descent, is regulated by a brake wheel.

I observed that, in ordinary course, the waggons were discharged at the rate of one in two minutes. Each carriage was no sooner pushed upon the frame than both frame and carriage began to descend; before the motion had ceased, the bolt had been struck out of its place, the coal was discharged, and they began to ascend again. Thus, absolutely, no time was lost in the delivery of the cargo, other than was necessary to complete the ascent and descent of the waggon. I have no doubt, that in a case of emergency, with special assistance to push the waggons on the frame, and remove them when empty, the rate might yet be increased, I should think even as far as a waggon a minute. Thus, as there are eight drops, and as each waggon contains 53 cwt. of coal, the proprietors possess the power of lading at the rate of $21\frac{1}{2}$ tons a minute.

It still remains to be stated how the empty waggon, after having delivered its cargo at the drop, is then disposed of, it being remembered that it is hoisted up to the upper floor of the building by a steam-engine, drawn with five or six others by a horse to the drop in question, where it is unladen, and being empty, lowered through the opposite window back again into the yard of the establishment. Although for the purpose of merely letting down the empty waggon the machinery is as simple

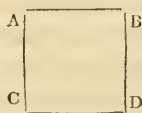
as may be, there is a part of this process very particularly deserving of notice. It is, perhaps, one of the most simple, and at the same time most ingenious devices ever hit upon.

To a spectator standing below, each waggon is seen at the commencement of its descent at right angles with the line of the building, that is to say, the front part of the waggon is opposite the spectator, provided he be immediately before the aperture. But during its descent swinging round horizontally in the air, it alights with a jerk upon a railroad parallel to the building. The twist aforesaid not only places the waggon upon its proper position on the railroad, as is required, but also gives it an impetus sufficient to propel it forwards of its own accord, without help of man or boy, till, with a hard clattering thump, it salutes its fellows standing in a row nearly an hundred yards distant.

This manœuvre is effected by two iron rods, which, passing through holes in the diagonal corners of the frame, direct its descent, causing it to traverse horizontally a quarter circle, or right angle, as has been stated. The rods in question, seen from below, appear to be about a couple of inches in diameter, and bent into a curve, somewhat resembling the handle of a scythe.

But to render the description more clear,—two cards being placed one upon another, on a table, let them be transfixed at the corners A and D by two pins, or pieces of wire, driven perpendicularly into the table. It is now evident that while the pins remain as they are, if the upper card be lifted up, it will move in a perpendicular line. But if, while the upper extremity of the pin at A retains its position,

the point be placed in the lower card at B, and in like manner, while the upper extremity of the pin at D retains its position, its point be placed at C; then, if the upper card be lifted up, it will descend on an oblique line, and occupy at the bottom a position at right angles to its former one. I have here, in order to avoid complexity, supposed the vertical



line from A to B and D to C to be straight in the experiment, whereas the rods in question are curved, in order to give the impetus aforesaid, but the resemblance to a scythe handle being borne in mind, the bend to be given to the rods for the purpose in question may be easily imagined. Thus the waggon, after discharging its cargo into the vessel lying underneath in the river from one window, is, on being raised again empty, merely pushed across to the other window, let down, as has been described, runs away of itself along the railroad, and thereby leaves clear space below for the next.

Added to a degree of activity displayed at this spot, unusually striking, the scene is rendered still more lively by the numerous attendant steamers employed here, as well as on the Tyne, to tow vessels in and out of the harbour; the latter operation is still indispensable, though the navigation of late years is much improved; not only have jetties been thrown out from many projecting points, but new cuts have in many places altogether altered the course of the channel.

CHAPTER XIX.

DINSDALE SPA, OR "SPAW."

A Word for Boots—Approach to the Dinsdale Hotel—The House and Grounds—Table-d'hôte—Village of Middleton one row—The Bath House—The Waters; Process of boiling detrimental—Extraordinary effect of Sulphur in solution—Sulphur Springs—Salmon Leap, or Fish Loch—A vicious Dog—Narrow escape of Alderman F——.—A Squadron of Fish—Intrepid Charge—Stockton and Darlington Railroad—Sound of the Engines—Curious description of Property—A Train on its route—A sagacious Horse—Comparison of living and inanimate Objects.

THERE exists not in the kingdom, at the present day, a more industrious and trust-worthy class of individuals than those functionaries whom custom has identified with their profession by the *sobriquet* of "Boots." Those who sit at home in arm-chairs, and live quietly in their own houses, can form but an imperfect idea of the extent of the responsibility that falls to the share of this part of his Majesty's subjects. Since the improvement in roads and the increase of trade have set the commercial world in a state of perpetual locomotion, many and various are the wants of a traveller in the way of assistance and information on arriving at the place of his daily destination: yet no sooner does he plant his foot in an inn, than his objects, be they what they may, are immediately undertaken and accelerated by honest Boots. Whether letters are to be delivered, or valuable parcels, or local matters of any sort to be attended to, application is always made in

the first instance to Boots. Boots is the last person seen in the house at night, and the first again on foot in the morning: of him it is required to know everybody and everything; to have not only a strong back, but a civil, good-humoured countenance; to be able to work hard upon little pay; to possess a clear head and a light pair of heels, and in short, with never-ceasing activity and time at command infinitely divisible, to officiate in every respect, and to the benefit of the travelling world, as the Mercury of the lower heaven. Hardly does the cock crow in a morning before Boots is on the alert—before the time of his repose arrives at night, every inmate in the house has sunk down in leaden slumbers. Traveller, remember poor Boots. You have given him his fee: yet, peradventure some copper money may still jingle in your pocket; nay, if it be a sixpence, it will not be ill bestowed on him who has welcomed your arrival, has sped your departure, has strained his sinews in your service, has done his duty, and now stands before you respectfully, wiping the perspiration from his brow with a fustian sleeve. Traveller, probably you are a bachelor; now then is the time to be liberal; remember poor Boots, while no weightier claims upon your purse disturb you;—wait not for the hour when, your travels at an end, and locomotive faculties impeded by joint gravity, a life of peregrination dwindles down to short stages, and concludes like the days of an uxorious blue-bottle fly at the close of a summer.

I had remained more than two days at Stockton, when mere chance brought to my notice a card, inviting strangers to repair to the Dinsdale Hotel, in

the immediate neighbourhood of the Dinsdale Spa, or Spaw. Never having heard either of the hotel or the spring, I made inquiry of Boots, and was indebted to him accordingly for all necessary intelligence, being moreover speedily consigned to a steam-carriage on the Darlington railroad, which deposited me at "The Fighting Cocks," four miles short of Darlington.

The approach to the hotel is extremely circuitous, for although the distance is not more than a mile from the road, the carriage way is full three miles: meanwhile the traveller, like the sailor kept off his port by contrary winds, makes his way in a spiral line, hardly sensible of progress, although the object all the time is in a conspicuous position.

Perhaps the want of access from the railroad is in some degree the cause of keeping the establishment in the background, the Spa, although long resorted to, being very little known without the limits of the county of Durham. Nevertheless it possesses advantages, as a place of summer resort, not to be equalled, I think, in all England.

In the first place, the house is a spacious, well-built mansion, lately erected by Lord Durham, (some say for his own residence, or that of a part of his family,) embellished with lawn and pleasure grounds, and situated on an eminence, commanding a magnificent view over the broad vale of Cleveland, as a foreground, and in the distance bounded by the Yorkshire mountains. Immediately below, the river Tees, almost equal in beauty to the Thames at Richmond, forms an ample and a graceful bend; and on its hither bank plantations afford a retired and shaded walk nearly two miles in ex-

tent. The hotel, the lawn, and plantations altogether, bear the appearance of a good, comfortable, gentleman's residence, rather than of an inn. As to the style of things within the house, I was induced, after one experiment, to make a second; on which latter occasion I remained there several days, attracted by the tranquillity of the spot, and the quiet, comfortable habits of the inmates. Upwards of a dozen people met daily at breakfast and dinner at the common table, as well as at tea, in the evening in the drawing-room;—the remainder of the day everybody managed his or her time as if the house belonged to them. The fare was excellent, and the terms even less than might be called reasonable; besides the party at the *table-d'hôte*, several people occupied private apartments.

Notwithstanding the highly medicinal quality of the spring, there is not in the neighbourhood, excepting at the Dinsdale Hotel, accommodation for families, otherwise than on an inferior scale. At the village of Middleton One Row, a mile distant, a naked-looking row of ill-placed and ill-contrived lodging-houses, resembling in appearance those “now and then knocked up in a hurry” in the neighbourhood of a brick-field, and all perfectly alike, afford each a miserable substitute for a habitation; their site, moreover, is totally unprotected by trees, on a bare common, fronting the south, and exposed from morning till night to the rays of the sun;—so that the aforesaid houses are, as regards the comfort of the visitors, like so many small ovens. The name of “Middleton One Row,” on first hearing it pronounced, sounds rather extraordinary, and is in fact unintelligible to strangers, it not being very clear

how the noun of multitude is to be taken ; whether as one Middleton, or one row,—or altogether, as the name of a place ;—yet such is the confusion of terms by which the authorities have been pleased to designate a small village ;—at least, so say the tail-boards of the farmers' carts, and the directing posts in the vicinity.

The spring, discovered about forty or fifty years ago, has been resorted to by the people in the neighbourhood ever since. A new bath-house, a handsome brick building, was erected at the same time with the hotel : the previous edifice, such as it was, as my informant expressed himself, “a dog-kennel sort of a place,” having been let on lease to an old blacksmith, little encouragement was held out to visitors, till Lord Durham, the lease having fallen into his hands, commenced the present improvements.

Besides conveniences for bathing, an apparatus is afforded for heating the water, its natural temperature being too cold for some stomachs ; which latter objection is the less unreasonable, considered together with the quantity swallowed by the patients ; some of whom drink four and others six large tumblers full before breakfast : one slim gentleman in particular informed me he took twelve tumblers in the course of one morning. They all say, that, drink as much as ever they will, they never feel full. Whatever may be the sensations of the parties, I can certainly testify to the inordinate quantity that, in their instance, the human haggis will hold : I have seen ladies and gentlemen swill tumbler after tumbler, till I have been in dismay, and have, though needlessly, almost trembled for

the consequences. The boiling process certainly deprives the water of its strength, as I ascertained by ascending a small ladder to the cauldrons in a loft above: there appeared on the surface of the water an incrustation nearly half an inch in thickness, and so solid that, by placing under it the hooked end of a small cane, I was enabled to remove one piece entire, as large as a folio sheet, and exactly resembling a cake of plaster ripped from a wall, containing, no doubt, much of the virtuous essence of the water, and being, in point of fact, chiefly carbonate of lime.

The chemical analysis is of course to be obtained in the proper quarter; in the mean time the unlearned may bear testimony, from its nauseous effluvia, to the resemblance it bears to that of the Harrogate well. Here, as there, they occasionally spell the word with a *w*,—Spaw; which last letter, placed where it is, gives the word, when seen in print, a formidable appearance, sufficient of itself almost to turn the inside topsy-turvy: thence it really seems advisable to turn the *w* out,—just as *us* ought to be served in other cases, and are treated, particularly among the modern languages. Sulphur, at all events, is contained in the water in considerable proportion; so much that those who drink it find, in a very few days, every article of silver in their pockets turned quite yellow; snuff-boxes, thimbles, and what not, all assume the appearance of silver gilt when very much worn. Trinkets of all sorts thus exhibit an inverse sympathy with the complexions of the owners, as if the goddess of the fountain first bid the white cheeks glow with rosy red, and then, inverting her wand, turned all

the shillings yellow. Much is predicated as to the efficacy of the water by this very simple fact: for if its potency be sufficient even to discolour the silver in a gentleman or lady's very pocket, it is but reasonable to conclude that, in its journey thither, carried, as it were, by wind and tide, through the various channels and pores of the body, it must necessarily, at the same time, work an indisputable change in the system: particularly, the situation of the bath-house and spring being close to the river Tees, as the inmates of the hotel have thereby the additional advantage of accelerating the natural process, by descending and returning by a steep hill, three or four hundred yards in length, in order to reach it.

There are other sulphur springs in the neighbourhood; one especially discharges itself, about a mile and a half above, into the Tees. The water that trickles from it in a rivulet, leaves a white incrustation along its channel, in appearance exactly like soapsuds. Here is also a basin of the same water, whence I believe it rises, nearly circular, about ten feet diameter and six deep: the water is exceedingly clear, and minute white particles adhere to the moss and subaqueous plants at the bottom, bedecking them with a shining spangled covering that creates an imposing effect; precisely of an artificially ornamented grotto.

The walks through the fields and woods in the neighbourhood of the Dinsdale Spa are as agreeable as can be imagined, and afford a splendid distant prospect, together with a home picture of rural retirement; but there are few particular points of attraction in the way of rides or drives in the neighbourhood. One local curiosity, however, if by

chance seen under favourable circumstances, is worth the pains of a journey from London to obtain a sight of it ; I allude to the salmon-leap (or Fish Lock, as it is called), about two miles up the river. This barrier, when the water is low, is merely an artificial perpendicular fall of seven or eight feet in height, by means of a dike, or stone wall thrown nearly across the river ; I say nearly, a space being left on both sides, by which the fish, at particular seasons, enter and are taken.

A stranger about to visit the salmon-leap has one matter of importance to bear in his mind, namely, that he had, in the first instance, better beware of the dog—a dog belonging to the miller, whose mill is close to the lock ; a savage animal, of a rare breed, just such a description of brute as one would not wish to encounter ; that is to say, a brindled bull, half mastiff, jaws under-hung, rat-tail, and ears as sharp as a fox. He has a trick (if he be still alive) of laying his nose cannily on his paws, as if asleep : meanwhile, on the visiter's approach, the lids of a pair of heavy-looking, vicious eyes, are but barely open ; yet, no sooner is the incautious adventurer within his reach, than, with savage ferocity, he jumps up, all fours, and springs upon him. It happened to be my lot to make his acquaintance as I was turning round a corner unawares, but a moment's glance having developed his good intentions, I shaped my course accordingly another way. On returning to the hotel I found his deeds were notorious, for only a few days before he had charged a Newcastle alderman, and nearly seized him by the leg ; nay, he would have succeeded, but the alderman's steed, like that of Tam o'Shanter, saved

the limb of his master, at the expense of a large mouthful of the hair of his own tail, which the dog retained as a trophy.

The river being considerably swollen by a few successive days' rain, I saw the salmon leap in great perfection; a spectacle which very far surpassed any idea formed from accounts previously heard, although, as to the height or distance that the fish is able to fling itself out of the water, I had over-rated its powers. The stream was tumbling violently in a cascade the whole breadth of the fall, and the fish, unable to surmount the obstacle, were advancing incessantly to the charge: it was said they would have gained the summit, but that the heavy torrent formed too strong an eddy below to render a sufficiently near approach practicable. As far as I could see, they usually rose out of the water six or eight feet from the bottom of the fall, although many sprang from a greater distance without reaching the cascade at all;—the greater part, leaping into the midst, were beaten down, and ingulfed in a moment. The courage, determination, and perseverance displayed in this instinctive manœuvre were really extraordinary;—during a whole hour I was on the spot, only three fish ascended the torrent, but their attempts were not less daring and incessant; they sprang without intermission, at the rate of twenty a minute,—for I saw, I am sure, no less than twelve hundred leaps in that hour. The animal darts at the cataract as a foxhunter charges a brook, exerting himself to the utmost, not only to the very last moment, but even when in the air: then they wriggle their sides like a horseman doing his best; at the same time, if it were not fancy, the eye flashed,

and an expression of energy animated for the moment even the countenance of a salmon:—many drove themselves headlong straight at the watery barrier; others threw themselves against it sideways, flapping their bodies heavily against the water,—frequently not less than five or six were in the air at the same time.

Although several people had collected on the banks of the river, more fish made the attempt towards that part, in spite of the crowd, than at a greater distance, and although so near that any one of the bye-standers might have knocked them down with a long pole, they showed, to all appearance, an utter disregard of danger.

The fish were, for the most part, small,—about a couple of feet in length. Of the three which succeeded in the attempt, one, a very large one, made a clear spring to the top, covering perhaps in his leap three yards in height and four in length. For some seconds he struggled hard with the torrent above, remaining, with his back above water, without advancing an inch; till at last, success crowning his endeavours, he dived down almost perpendicularly, with his head against the stream, and immediately disappeared,—as if eager to exchange turbulent ambition for scenes of quiet repose.

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The sound of the engines, on the Stockton and Darlington railroad, may be distinctly heard on a still day at the Dinsdale Hotel, like the flapping of mighty wings, as they pass along; and the line being in many parts circuitous, the puffs of smoke appear here and there among the trees in a thickly wooded country, enabling the spectator to mark the

progress of the trains and trace their direction. In one part of the railroad the rails are laid straight for more than a mile together. Here I used to feel much gratification, by seating myself to watch the approach of the several heavy trains of coal-waggons, on their way backwards and forwards, laden and unladen, between the Darlington coal-field, and the staiths at Middleborough or Stockton.

The general order of things on a railroad is curious from its novelty ; in this new description of property, the vested right of the public in the way and footpath is not acknowledged, yet their advantages are increased by rapidity of locomotion, while the disadvantages of the thoroughfare to the proprietor of the soil, in comparison with those attendant on highways in general, are diminished in an equal proportion. On the banks of a canal navigators and loiterers infest the towing-paths and create a nuisance, but all descriptions of travellers on a railroad may rather be compared to a flock of pigeons or swallows, that confine their flight to the regions of the air, and leave neither track nor trace behind. Silence and stillness reign within its precincts, and harmonize with the grandeur of the spectacle ; the rails converging in perspective form the track of a terrestrial zodiac,—lines terminating in points in the horizon, whence at prescribed periods earthly objects rise and perform their transit, while many a muscular arm toils in preparation for the phenomenon, which appears and passes away. As train after train of rolling waggons approached, a black speck first appeared in the distance, gradually and by slow degrees extending its dimensions ; meanwhile the sound, like the roaring of the sea, became

as a heavy gust of wind, and then, as the carriages receded, grew again less and less audible, till it expired in a low gentle murmur.

I remarked especially one train, consisting of upwards of a score of laden coal-waggon, on their way for shipment at the mouth of the Tees. As they glided onwards, steadily but rapidly, the attitudes of the two engine-men in front were in striking contrast with the stupendous momentum of the advancing body. Impelled by a power called by themselves into action, their arms folded on their bosoms, as if either lost in their own reflections, or dozing life away, they passively reclined in an easy posture, whirled along with an equable velocity.

Behind the coal-waggon, on the last carriage of all, a low truck, stood an old cart-horse quietly eating hay out of a basket. The sagacious animal, thus left to himself, on a bare platform of boards, within a couple of feet of the ground, and without side-rail or guard of any description, displayed a consciousness of the danger of jumping out, by the mode in which he cautiously rested on his haunches, prepared by his attitude against the sudden possible contingency of a halt.

With reference to this mode of conveying horses on the carriages, one particular instance of the sagacity of an animal on this line is worthy of notice. An old horse, regularly employed to draw waggon laden with lime along the level, on arriving at an inclined plane, where the carriages descend by their own gravity, his services not being required, is accordingly unhitched; on which occasion he invariably first allows the carriages to pass him, and then trotting after the train, leaps on the low car-

riage of his own accord ; and this he does, not only without urging, but, on the contrary, with so much eagerness, as to render it difficult to keep him off, though the carriage is two feet from the ground, and the progressive rate nearly five miles an hour. A basket of hay constantly suspended on the afore-said carriage for his use is the main incitement to this feat of agility, so that the only wonderful part of the ceremony is its performance, and the skill with which a four-footed animal in such a case preserves its equilibrium.

As the train before-mentioned passed along, the living creatures existed in a state of absolute torpidity, compared with the appearance of the engine that bore them on their way ; the latter, by its tumultuous pantings, endued as it were with breath and progressive motion, attributes of life itself. As fable reports, Prometheus of old, *εφημερῆς πορὸντα τιμῆς*, animated clay by fire stolen from heaven ;—man, in modern times, thus, actually though imperfectly, imitates his own image, and the fiction of fire from heaven may possibly bear obscure relation to the discovery of steam, the fable of Prometheus, altogether perhaps referring, though in dark and ambiguous terms, to the inventions of former days.

CHAPTER XX.

HARTLEPOOL.

Harbour considered as a Port of Refuge—Its curious Situation—Difficult approach by Land—Operations in progress in 1834—Operations in progress in 1835 contrasted with the former—Disappointed Speculators—Interested Opposition—Causes of Failure—Probability of their removal—Present state of the Works.

THE extensive works at Hartlepool, as to their success or failure, not only involve the fate of an asylum harbour on the eastern coast, but are interesting at the present time, because suspended, from causes whereon local opinion is at variance; not that there remains any doubt that the harbours between the Humber and the Firth of Forth are inadequate ports of refuge for shipping, and that heavy annual losses of life and property are attributable to the dangerous navigation; but the question is, whether or not the Harbour of Hartlepool, notwithstanding the large sum of money already expended upon it, will supply the deficiency.

The town is curiously situated, on a small nook of land or peninsula, the latter taken in the most literal sense; for a natural creek or inlet, entering at its base, and stretching in a line directly across, has separated it, as nearly as may be, from the main land; so that, it might, if thought advisable, by an artificial cut of about an hundred yards in length, through a soft, sandy soil, be rendered an island

altogether. On the flat space, within this creek, and immediately adjoining the town, are the works in question; capacious docks, connected with the sea by a tide-harbour, the latter calculated to receive and float vessels of large size. The approach to the town by land is extremely bad, by a road for the last two or three miles through a bed of sand so heavy and deep, that the sea-shore, at low water, though by no means hard and sound, afforded the better track of the two, till the new works entirely cut off the latter communication.

I was a witness of the operations, when in full progress during the summer of 1834, and again contrasted the desolate appearance of the ground, as exhibited only a few months since, with the display of energy and unremitting labour that enlivened it at the former period.

On the first occasion, three steam-engines and two large limekilns sent their smoke among the atmosphere, within about a square mile of ground, on which spot, like a huge ants' nest, not less than eight hundred labourers found employment, all divided into knots or gangs, co-operating in the harmony of discipline, and guided as it were by a uniform impulse, though proceeding independently in many contrary directions: of labourers alone, chiefly Irish, the temporary increase of population in the small town of Hartlepool was then equal, it is said, to not less than sixteen hundred persons.

The principal operations in progress were the excavation of the docks, and the removal of the rubbish a distance of a couple of miles, to the elevated causeway, forming part of the line of the newly projected Durham railroad. This railroad, now nearly

completed, may be taken as a part and parcel of the Hartlepool operations, whereby a communication has been opened between the Durham coal-field and the sea.

Here a flat extensive space, carved by huge excavations, and covered by heaps of soil and embankments, was intersected by temporary railroads in every direction.

Along these railroads all converging in a point, numerous horses were employed to draw the rubbish to the foot of an inclined plane leading to the aforesaid causeway. At the top of this inclined plane, three quarters of a mile in length, was the stationary steam-engine, by which laden waggons coupled together were drawn in sets of eight to the top; these were then dragged three quarters of a mile farther by the same engine, by a messenger line and endless rope, to a spot whence they were removed onwards by the aid of horses.

The messenger line and endless rope also brought back hither to the same spot the empty waggons, which then, in order to be filled again, were made to descend the inclined plane by their own gravity, under the guidance of a man who regulated a brake upon the wheel.

Thus as one steam-engine dragged backwards and forwards the laden and empty waggons, the other two were meanwhile engaged in pumping water from the bed of the new docks.

The masons proceeded at the same time with earnest industry, raising the inner walls; cranes of the largest power were elevated in various parts, and the strength and activity of the labourers were remarkable, as they wheeled one after another laden

barrows along single planks, placed zigzag over perilous precipices, and at angles of considerable elevation.

One man especially, performed a service of this sort in an extraordinary manner. The thing to be done was to remove wheelbarrow loads of earth from below, to a plane forty feet above, along a plank laid at an angle of forty-five degrees elevation, or thereabouts. An old horse at the top, at a windlass, walking steadily round in a circle, drew up with great ease the laden wheelbarrow, together with the man; the latter holding the same, and steadying it by the handles. Having discharged the contents of the wheelbarrow, in order to get down again, for the plank was too steep to allow him to walk upon it, he held the barrow by the handles, his back towards it, the rope being fixed to the fore part. The horse then backed at the windlass, and the man, thus supported by the barrow behind him, actually slid from top to bottom. This feat he performed all day and every day, having by practice acquired a suitable attitude, so as by bending his knees to balance his body to great nicety. Though the plank was not more than fourteen inches wide, he was confident and steady, talking to his comrades, and smoking his pipe unconcernedly as he went up and down.

The works were carried on with equal alacrity both day and night without intermission, except on Sundays; the men being divided into gangs of eight, with three reliefs in the twenty-four hours; that is to say, at six in the morning, at two in the afternoon, and at ten at night.

As I was observing the progress of the laden waggons up the inclined plane, as has been de-

scribed, I was near meeting a serious accident. Being then close to the thick rope, straining upon a weight of more than twenty tons, it suddenly snapped asunder, and flew in coils, like lightning, into the air; but the point of fracture was so exactly opposite to where I stood, that although not more than a yard distant, I escaped untouched.

The determined energy displayed in the course of these operations by the public authorities, imparted, as may be naturally imagined, a wonderful stimulus to private speculation; and the consequence was, that all at once buildings to the amount of upwards of one third of the old town, were raised above their foundations. It was impossible, at that period, to move along the streets without being obstructed by heaps of bricks, and cart-loads of lime at every turning, and the spirit of enterprise had pervaded all classes to such a degree that everybody seemed unanimously willing to hold cheap the most grievous inconvenience, provided, that even indirectly, it tended to profit.

Such was the state of things at Hartlepool in the summer of 1834. In the summer of the present year I paid the town another visit, when it might well be said of a spot before seen in the zenith of its glory,—“*Heu quantum mutatus ab illo!*” An over anxiety on the part of those concerned to throw open the harbour before the subordinate arrangements were altogether perfect, had prematurely accelerated the operations; and to this haste the catastrophe which followed is admitted to have been wholly attributable. The new dock-gates, which, according to common report, were secured by buttresses within, instead of without, were, at all events, lifted up and floated by

the weight of water, and the sea, rushing with tremendous force through the breach, bore down everything before it, inundating the whole extent of ground occupied by the works ; the immediate consequence of which calamity was, that the efforts of the projectors were paralyzed, the works abandoned, the town deserted, interests in the neighbourhood split asunder and divided, and the general cry spread abroad that the scheme was a total failure. In the meantime, the appearance created by all these events was truly deplorable. The whole space within the tide-harbour, appropriated to the site of the new docks, was a picture of watery devastation ;—the town, owing to the sudden discharge of the numerous band of labourers, by whom it was enlivened, seemed now desolate ;—the persons connected with the operations had all departed,—the countenances of the remaining inhabitants were visibly dejected,—most of the new houses, amounting, as before stated, to one-third of the old town, and many in an imperfect state, were altogether abandoned ;—and speculators, crushed by the panic attendant on the prostration of the scheme, derived little consolation from the principal alleged cause of the failure ; namely, want of funds to carry on the operations. And though last, not least, of all these misfortunes, another serious obstacle had presented itself,—a bar thrown up by the sea at the mouth of the harbour.

Meanwhile, in spite of these appearances, the Durham railroad was not only still progressing towards completion, but an additional daily conveyance had even during the present year been established to Stockton, circumstances in some degree indicative, on the part of the public, of favourable

opinion; while, on the other hand, the movements of the opposing party seemed partly accounted for by a rival scheme,—a harbour proposed at Redcar, on the southern or opposite bank, at the mouth of the river Tees.

It appears to me, at least according to the imperfect means of forming an opinion afforded to a mere casual spectator, that independent of every rational objection and natural difficulty attendant on the prosecution of the Hartlepool works, much interested opposition has been brought to bear to their prejudice; not only on the part of the promoters of the rival harbour at Redcar, but from other quarters. After walking round and round the works in the latter part of the present summer, I certainly came to the conclusion, although not versed in engineering, not only that the plan of the harbour is good, but that the foregoing disasters are temporary and removeable, and that Hartlepool Harbour will still be an eminent acquisition on the eastern coast. As to the proposed harbour at Redcar, I passed a day on the spot, but was unable to appreciate the advantages of the undertaking, which seemed mainly to rest on the natural reef of rocks, which reef, it was said, coincided exactly with the most eligible line capable of being chosen for a foundation. The extensive flat sandy shore seemed to me to offer no peculiar facility towards forming an harbour other than the reef aforesaid; and hereon, as I understood, it was proposed to erect, by way of a beginning, a wall of the enormous length of twelve thousand feet, or of two miles and a quarter, very nearly.

In the mean time the present state of things at Hartlepool is as follows:—I have already stated

that the site of the works is very nearly an island, in consequence of a natural creek, which runs almost directly across the peninsula at its base. This creek is now the tide-harbour, and forms an oblong piece of water of capacious dimensions, in depth from twelve to eighteen feet, and communicating by means of the dock-gates, burst open by the sea, as before stated, with the new docks immediately behind the town. Besides a set of coal-staiths and landing places, a noble set of sluices has been constructed at its extremity, by which sluices means are afforded of overflowing at will an extent equal to one hundred and forty acres of flat barren land in the rear, and letting this water pass through back again at the return of tide, with a force tending in a great degree to clear the mouth of the harbour.

These sluices, solid and well-constructed, consist of three pair of twin apertures, each aperture an oblong of four feet three inches in height, by fourteen feet eight inches in breadth, and surmounted by an arch whose versed sine is one foot five inches. At each aperture are three sluice-gates, each sluice-gate raised by a powerful double-handled crane, so that thirty-six men would be required, were it necessary, to lift up the eighteen sluice-gates all together. The tide harbour is encompassed by a strong wall, and, of the coal-staiths before alluded to, two are already completed, and furnished with drops, like those of Middlebrough. Hence the former communication with the town of Stockton, by the way of the sea-shore, as regards horses and carriages, has, as before stated, been entirely cut off; these now necessarily have recourse to a circuitous route, at least two miles in extent, while people on foot are

ferried across in a boat. The landing-places are clumsily contrived, and the steps so steep and narrow, that within the divided wall two persons have barely room to pass each other going up and down. In fact, there is hardly space to admit the head of the boat, which is lifted up and down by the wave, at the risk of knocking out the bottom; as the passenger places his foot on the point of the keel, and leaps out on the steps as well as he can, he is reminded rather of the mode of entering a marine cavern, than arriving at a sea-port town.

From whatever causes the bar at the mouth of the harbour has been produced, it received considerable augmentation by the soil carried away at ebb tide after the irruption of the sea over a large space of ground covered by heaps of newly-dug earth; thus far the accumulation is, of course, temporary; and as a powerful steam-dredge is continually raking the bottom, it is probable that, by degrees, the obstruction may by these means, in great part, be removed for ever.

A good effect may also be anticipated by the removal of the coffer-dam, temporarily erected for the protection of the works. This structure stretches across the entrance of the tide-harbour in a direct line towards the old stone-pier, so that, between both, the current has been disturbed, neither has the sea been allowed thereby free ingress and egress. The operation of removing this coffer-dam was being carried into effect during the present summer by the few labourers still retained on the works; when totally removed, the natural force of the tide will no doubt carry away that part of the accumulation of sand, evidently the immediate consequence of the obstacle.

A further experiment is in contemplation by erecting a jetty, in order if possible to turn aside the current, if not to remove the bar altogether, or at least throw it so far seaward as to be nearly harmless; and it seems feasible that, were a point taken within the bight to the southward, whence to erect a series of wooden groins, or stout planks supported sideways one above another, similar to those between the east and west cliffs at Brighton, the effect would probably be the same as at the latter place,—namely, by raising the beach at the extremity of the bight to throw the sea back altogether. At Brighton, as is well known, the sea formerly set in with such violence as to threaten with instant demolition a great part of the cliffs; nevertheless, the said measure there proved extraordinarily successful. So soon as an accumulation of shingle settles on the western sides of these groins, they are scuttled by removing one or two of the upper planks, and the incumbent mass passes over towards the next, till, by degrees, so great an elevation of the beach has taken place that the current is changed, and the sea, taking a slanting direction, falls upon the coast full three miles farther to the eastward.

CHAPTER XXI.

S U N D E R L A N D.

A diligent Shoemaker—A rough turn-out—Sunderland Bridge—Steep Rise—Advantage of a horizontal Line—Sunderland Keels—Coal Staiths—Trimmers—Adjacent Scenery—Objects in the Landscape curiously contrasted—Pemberton Coal-pit—Staith Basin at Seaham Harbour; its commodiousness and open position—London Muck in Ballast.

HAVING occasion to make progress the best way I could from Hartlepool for a few miles to the turn-pike road from Stockton toward Sunderland, I came to the determination of hiring a gig, and was directed to a shoemaker, who, besides working at his trade, was the proprietor of such vehicles to hire. I had no difficulty in finding out the residence of a person apparently known to all the neighbourhood, and one who had, as far as I could judge, in the way of his trade, considerable business on hand; in fact, so many different things to attend to, that, without the help of apprentice or journeyman, he was hard pressed to reconcile his various occupations one with another. When I stated my business, he at once agreed, without any hesitation, to furnish me with a conveyance such as I wanted, although on another point he seemed quite at a loss and puzzled,—namely, how to provide a driver, for he had no journeyman, as I have hinted before, or other body to help him. Accustomed to depend upon himself,

he was the less easily scared by a difficulty; accordingly, the moment he perceived I was determined on starting, he gave the shoe on his lap a few smart strokes with the hammer, threw it into the box among various tools and implements, at once rose from his seat, and said he would drive me himself.

He was an active, lean-visaged, little man, particularly sparing of words, and I really believe that, in five minutes from the time I first accosted him, he not only untied his black apron, tightened his waistband, and fastened his shoestrings, but invested himself in a coat with large white buttons that hung on a peg at his elbow, and marched out of the shop. Here I waited his return till I began to anticipate want of success in the negotiation, for he remained absent full twenty minutes; which time, however, had been turned to good account by the horse, if not by the master; for he led by the head an itchy, ticklish, thorough-bred mare, her lips abundantly covered with foam and half-chewed oats. The gig, to which she was attached, a crazy vehicle grievously injured by hard body blows, and other mechanical ailments, afforded an object of sober contemplation; to every fracture a different remedy had been applied,—one shaft was dove-tailed, the other spliced, a thick plate of iron was screwed underneath both, whence, as neither could give way again, the bend or stress was thrown so far behind, that by the next accident the body probably would split and go asunder in the middle; and appearances were even still worse than reality, inasmuch as neatness had been altogether sacrificed to strength in the repairs aforesaid. Scars, numerous and visible though they be, are, if well cured, better than latent

symptoms; neither was the shoemaker's mind at all troubled on the point of constitutional debility, for it was easy to perceive, from his anxious looks, and certain expressive gestures, that his attention was wholly directed to another matter.

How and where possibly to find room in the carriage for two persons to sit together with three moderate-sized portmanteaus was really a difficult matter to determine, and at the same time I saw that it not a little puzzled him. Still he was inflexibly silent, and as his mind and nervous system were wrought to full action, I was amused by observing his operations, and encumbered him with no advice. At last, after yielding in various ways to the effects of sudden excitement, he remained thoughtful for a little while, and then drawing his thumb a few times across his chin, the idea appeared to strike him at once; without further delay, except to scratch his head for a couple of seconds, he now set to work in earnest, and in as many minutes turned round with a smile of satisfaction that plainly said "all is ready."

Within a vacant space in the carriage, contrived expressly for me, I sat certainly comfortably enough, but for himself he had omitted to care at all; apparently neither consulting ease nor appearance in the disposition of the luggage. Immediately under his feet lay one portmanteau, the two others resting endways upon it; thus one of his legs rested inconveniently high, and the other was absolutely up in the air.

Making not the slightest complaint, in that attitude, the lash of a thick-handled whip idly reclining over his shoulder, he chirruped to his high-couraged

old mare. The willing animal, switching her tail in anxiety, now, in spite of her load, darted off in an instant, dragged the vehicle gallantly through the deep sand; and, though grievously lame in the round bone, arrived in three-quarters of an hour at the door of a public-house, six miles distant, at the village of Skerrington, on the high road from Stockton, whence I took coach, and proceeded sixteen miles farther to Sunderland.

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Even after a recent visit to the Menai Bridge, its proportions fresh in one's recollection, that of Sunderland is hardly seen to disadvantage. I cannot remain at any time an hour in the town without going over and over again to the spot to view and admire what certainly was at the time it was raised, then at an early stage of science,—a daring project. As magnitudes chiefly depend on comparison, its stride is more awful and magnificent than that of the Menai; whether it be that the support is here below instead of above, or because the quivering, jarring sensation felt when standing in the centre is far greater; whatever may be the cause, a spectator can, according to appearances, hardly believe the span of the Menai to be wider. The effect is no doubt partly produced by the busy throng of ships, here by far more numerous than at the Menai Bridge, whose scarlet vanes twinkling from the top-gallant mast-heads beneath embellish the contrast, and augment the appearance of altitude. The rise in the middle, setting aside grace and beauty, is a considerable drawback, particularly as modern improvement has now almost universally exploded this old-fashioned principle in favour of a horizontal

line. The span is two hundred and thirty-six feet, —four feet less than that of the centre arch of the cast-iron bridge over the Thames at Southwark, and the rise aforesaid so abrupt that, standing on the spring of the arch on one side, a stage-coach is entirely lost sight of as it descends on the other.

From a height commanding a bird's-eye view of the river below, the neat, trim Sunderland keel, compared with the heavy lighter on the Tyne, wherein a mountain of coal is confined by a fortification of moveable boards, appears to considerable advantage. The Sunderland keel resembles in shape the horizontal section of a walnut, divided into eight compartments, each containing a square iron tub, fitting like a canister in a tea-chest. Instead, therefore, of the laborious mode in practice on the Tyne of shovelling the cargo by hand from the keel into the vessel, each of these tubs is lifted up bodily by machinery, and the contents, fifty-three hundred-weight, or a Newcastle chaldron, tilted at once into the hold of the receiving vessel: a modern improvement, whereby, though the public profit generally, the loss and hardship press partially on a particular class of men. The hardy, laborious race of keelmen are more and more every day deprived of their ancient occupation, as by means of new appliances vessels are laden at the wharfs and staiths, which formerly received their loads shovelled on board in the stream by their hands.

I saw one of these keels unladen at a wharf close to the bridge. A score or more lay moored together, each of the shape described, similar in size and figure, and displaying an outline of geometrical precision.

The one to be unladen being alongside the sloop destined to receive her load, and both close to the wharf, the process was as easily effected as described. A huge crane let go its grappling chain within the keel; this was in a moment fixed to one of the tubs. The tub was lifted, swung over the sloop, tilted, swung back again, disengaged from the tackle, and a fresh one hooked on;—by the assistance of one man, the machine on shore continued its office with the same apparent ease that an elephant swings his proboscis out of his cage and in again to pick up and eat an apple.

In order to obtain a view of the bridge from a more distant point, I walked up the river along the south bank, and sat down on a wooden bench close to the staiths, whence the vessels were being laden by drops from the shore. Spouts are used at some of the staiths instead of drops; and the great dispatch of business going forward on the spot, and the severe and unremitting labour exercised by the men at work in the holds of the vessels, is remarkable to view. These men, called trimmers, whose business is to level the cargo as it comes tumbling below, a chaldron or fifty-three hundredweight at a time, earn 2*l.* 15*s.* for loading the vessel, which job, as it occupies five men for five hours, yields each man for his Herculean labour 2*s.* 3*d.* an hour, nearly.

Hence the bridge is seen to great advantage. The bench on which I sat, and the whole of the bank, are far above the level of the river; the bridge is still higher, its figure partially obstructed by the masts of the shipping, which, in a dense mass, occupy the space between; thus the variety of ob-

jects on the bridge, and on the water, afford extraordinary contrast when seen together. Sometimes, amidst a forest of masts, a coal-waggon and a stage-coach appear to meet in the air, the stage-coach performing a segment, the waggon the quadrant of a circle, as the one passes over the bridge, and the other descends from the drop towards the surface of the river; the waggons, incessantly trundling one after another along the railroad, to the bank of the Wear, continue to perform these evolutions, while the entire spectacle, viewed through a network of ropes and rigging, creates a most imposing effect.

I afterwards visited the Pemberton, or Monk Wearmouth Coal-pit, the shaft of which reaches to the depth of two hundred and seventy-eight fathoms, deeper than any other in England, or, with relation to the level of the sea, perhaps the world. The sinking occupied nine years, and the working was first commenced in October, 1834. Than the steam-engine, though enormous in size, there are others still larger in the neighbourhood; its beam weighs thirty-six tons, the cylinder is six feet one or two inches in diameter, and the quantity of water raised, three thousand gallons a minute. The site of the coal-pit is within a few hundred yards of the Wear, on the north bank, about a quarter of a mile above the bridge.

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To a stranger casually passing this little harbour, appearances certainly indicate its thriving condition; the new south dock already thrown open, and the staith basin, form a striking picture of the economy of space,—no one but an eye-witness could imagine

the numerous vessels frequently to be seen floating within the latter, for the purpose of receiving their cargoes from the staiths above, disposed within such limited space. On the day I was on the spot the basin contained by no means its complement, though seventeen colliers had then already taken up their stations; as I was informed, it accommodates with ease twenty-five, and moreover an enlargement determined upon, towards the northern extremity, is already in progress. The works are not only interesting as the undertaking of a single individual, but, also from their dissimilarity to harbours in general, which are usually formed within a bight or bay. Contiguous to a bluff headland of limestone scooped hollow, kilns have been erected, and the lime burned on the spot; the material is thus turned to account, and the works occupy the excavation; within, as the cliffs are lofty, the vessels ride with their top-gallant mast-heads below the summit.

Owing to the shallows at the mouth of the harbour, the service of a small steamer is continually indispensable to tow vessels in and out; those of larger size are unable to carry out more than a part of their cargoes, and receive the remainder outside from keels. Notwithstanding this objection, and moreover that access is utterly impracticable during a strong easterly wind, a vessel, from the open position, runs no risk of being embayed, but at all times may either make the harbour or leave it, according to circumstances;—even when within a few minutes of being towed into port, she may bear away, if so disposed, to another quarter.

According to the information I received, at present about thirty vessels a week are loaded from

hence ; many of these bring manure in ballast, fifty or sixty tons the cargo ; not horse-manure, but that of London streets, so that the act of unloading by men employed for that purpose in the hold, must be performed in a truly pungent atmosphere, A considerable number of colliers, bound to Shields, bear also these fragrant odours from the south.

CHAPTER XXII.

NEWCASTLE—SHIELDS.

Town Moors—Extraordinary Discipline among the Cows—Carlisle Railroad—A Voyage to Shields—Steam Ferry—Stanhope and Tyne Coal Staiths—Extreme length of the Jib—Curious Principle applied in the Balancing Weight—Effect produced by the Spectacle.

AMONG other municipal privileges in the city of Newcastle, every freeman claims property, as far as it goes, in the town moors; that is to say, he is entitled to the pasturage of two cows;—not upon brown, sour, unhealthy herbage, such as characterizes the ordinary description of common, where geese, having walked and fed, “consumed all before them, and poisoned all behind them,” the rest of the grass may be had for nothing; but over an extent of several hundred acres of excellent, rich, meadow land, immediately contiguous to the town.

To ensure regularity amid the diversity of private interests consequent upon the clashing of ownership, two herdsmen are appointed by the corporation, to collect the herd twice a day, at milking time, and drive them into the precincts of the town, where they are met on their return, or find their way of themselves to their several owners. At the periods above stated, five or six hundred, or more, of these matronly animals may be seen daily on their march homewards, in two grand divisions, the one of which

enters the town by Percy-street, and the other by Gallowgate.

It was on the occasion of a morning's walk on the northern outskirts, that I first became acquainted with these particulars; my attention was then led to what I conceived an unusual number of cows on the open land in question: and not only were the herd remarkable as to numbers, but a restless, uneasy spirit prevailed among them, which, in order to understand, required explanation. The herdsman was at that time engaged in the duties of his station, diligently threading the extremity of his line, and compelling every loitering and wandering cow to join her companions. Thus he cantered along, mounted on his galloway, while at a distance, farther than the eye could reach, the eccentricities of his course were marked by the short, sharp barkings of a dog, his faithful attendant and aide-de-camp.

The sagacious leaders of the herd in the foreground, those whose disposition I had remarked, aware of the well-known sound, urged by their swelling udders towards their homes, yet restrained by a sense of propriety to await the word of command, were patiently, or rather impatiently, lowing; and not only testifying, by their various looks and actions, their extreme eagerness to proceed on their way, but exemplifying the difficulties that always exist in the path of duty, when opposed by natural inclination. Sometimes they hastily caught a bite of grass, and tossed it pettishly into the air at the bite of a fly, then wistfully stretched their necks across the moor to see if their refractory sisters

were coming; and then again they would stamp their feet and butt at each other in disappointment and sheer vexation. It really was extraordinary perfection of discipline, by dint of which these cows collected together of their own accord in the front, and remained in a state of moral restraint full twenty minutes, under pressing anxiety to march, yet not one daring to set foot on the adjacent turnpike-road, although unrestricted by fence of any sort, without a boy to guard them, or any other kind of let or hinderance whatever.

In the meantime, as the ground to be traversed was of considerable extent, the herdsman was not without his share of trouble; nevertheless, having settled his affairs on the frontier, on he came galloping along with his dog; he had left behind him many of the herd, and the foremost, as if by intuitive knowledge or mutual understanding, already began to divide, pairing off into the two grand divisions before mentioned, and falling naturally, as it were, into their respective lines of march. I accompanied the eastern division homewards, therefore know not the proceedings of the others; they no doubt conducted themselves precisely the same as these. It was extraordinary to witness how all, nearly two hundred in number, immediately on their arrival in the town, instinctively broke off into detachments, each departing through the cross streets as occasion required, and these again subdividing into twos and threes; sometimes one single cow, unattended, might be seen stepping leisurely along, unmolested by men or boys, quietly chewing the cud, placing her feet tenderly on the uneven paving-stones, and

daintily picking her way, through intricate streets and lanes, to her place of abode.

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Sixteen miles of the Newcastle and Carlisle Railroad are already completed; and carriages attendant upon the trains daily ply to the small village of Bleadon, on the south bank of the Tyne, four miles from Newcastle;—from Bleadon passengers are conveyed by steam to Hexham. Those to whose lot it has previously fallen to travel this mountainous road can appreciate the agreeable change between the former laborious journey up one steep hill and down the next, and a level plane;—to form an adequate idea of the beautiful scenery on the way, the traveller must be at the pains of gliding through it himself.

On passing through Newcastle, I took occasion, by way of an evening's excursion, to pursue this picturesque route,—a spot celebrated by Goldsmith as the abode of his Angelina:—

“ My father lived beside the Tyne,
A wealthy lord was he,” &c.

I proceeded half the distance to Hexham, and returned by the homeward train, which stopped, for the exchange of passengers midway. The curiosity of the townspeople raged in such force, that arrangements for the auxiliary wheel-carriages to and from Bleadon were insufficient to meet the demand: the few engaged in the service loaded without moderation, were not subject, as far as I could perceive, to any sort of regulation.

The first four miles of the railroad were not

hitherto completed, nor the line of its continuation to the westward yet decided on;—proposals since made and about to be carried into execution, will extend it along the south bank of the Tyne to South Shields; thence along the line of coast to Sunderland.

Besides the aforesaid sixteen miles of ground, already finished, of the whole work, though slowly, steadily progressing, the last twenty miles, from Haltwhistle to Carlisle, are in a forward state; and the sixteen miles in the middle laid out, ready to be taken in hand.

In the future progress of this work, commenced in spite of inequalities of ground, and local disadvantages, with the expectation of as moderate a return as any similar speculation, now that the chief opposing difficulties are surmounted, it will be interesting by and by to watch the gradual course of improvement in the neighbourhood, were it only to observe the benefit resulting to landowners on this desert track, by the increased facilities of obtaining manure and transport for their produce. There are few instances whereby one general result, arising from railroad communications, will be more strikingly developed, namely, the equalization in value of land, the consequence of a stimulus imparted to agriculture, bringing all sites and situations, in point of natural advantages, nearer to a level. In the meantime, local improvements are so various and important, that, while it is evident an effective blow has already reached the root of the monopoly hitherto enjoyed by a few thickly populated manufacturing towns, it is not easy to determine, either in extent, number, or position, the rival establishments which

will inevitably sooner or later spring up in other parts of the country.

On arriving at Bleadon, the train being ready, we immediately departed: several farmers' carts composed part of our cargo; the horses of which were accommodated with standing-room on a large railed platform, constructed on purpose. Besides seats in covered and open carriages, benches were fixed aloft, on the top of the covered vehicles; here those who preferred airy travelling were at liberty to sit, back to back, and look about them; curiosity, however, once gratified in this respect, he certainly consults economy rather than taste who repeats an experiment, wherein it is impossible, owing to the rapid motion, and the smoke and cinders which fly backwards from the engine, to open more than a quarter of an eye at any one instant of time during a whole journey.

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A voyage from Newcastle to Shields by the regular steam-packets, which depart every half-hour throughout the day, is cheap and disagreeable. For the charge of sixpence, although the ordinary time of the passage is an hour and a half, it sometimes happens that the traveller is accommodated with quarters on board, in regions of dirt and smoke, for a couple of hours more; nay, not unfrequently, little pains being taken by the authorities to clear the channel, half a dozen of these small vessels may be seen together in the middle of the river, quietly reposing on a sandbank. In the latter predicament I had the misfortune to remain for more than an hour, and was indeed truly glad when, after having landed, I found myself, bag and baggage, with a porter at

my heels, on the very excellent raft, float, ferry-boat, or whatever may be its proper denomination, which plies between North and South Shields.

I never met with a more commodious vehicle of transport across a river than this, into which a person may literally canter on horseback, or drive in his gig or his carriage, without the slightest danger or inconvenience to man or beast. It is, in fact, a double steamer or twin-boat, carrying her paddles out of sight in the middle, having two engines, and two funnels, and being in every respect the same as two steamers lashed together. On each of the landing-places on the north and south side of the river a machine is contrived to form a level platform from the shore to the vessel: it is moveable on castors, and slides up and down an inclined plane into the water, according to the height of the tide:—to make accommodation more commodious, cross pieces of thick matted rope are laid across, which effectually prevent cattle from slipping. Embarkation and disembarkation are thus rendered as easy as such a process can be; the machine plies at as frequent intervals as possible throughout the day, and the passage-money for one individual is no more than a penny.

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A traveller in England at the present day, without considering geographical points in the world, has quite enough to do to study topography: especially in this region of coal it is as difficult to define and become acquainted with the innumerable railroads, leading in curves and straight lines over private property in various directions, as to trace the flight of a pigeon through the air. The Stanhope

and Tyne Company at South Shields have recently completed a railroad from Stanhope, on the banks of the Weir, in the county of Durham, to the Tyne, thus opening a steam communication across the country between these two rivers. They have also already erected coal-staiths of unusual magnitude, such as eclipse those at Middleborough, and may now, instead of the latter, claim the merit of being superior to any in England. The number of drops, however, at present, are only three, which number, it is said, are to be completed to as many more. Hence many pits will discharge that coal, previously sent to the banks of the Tyne, several miles higher up; and these staiths, as an additional point of shipment, will add one to the numerous new communications and out-pourings daily creating important changes throughout the whole range of the coal districts.

Their site, at a short distance from the mouth of the Tyne, is elevated so considerably above the river, that the main beam, or jib of the drop, is fifty-five feet in length; the pivot, instead of being in the middle of the jib, as at Middleborough, where the balancing weights act upon the opposite extremity, is here at the bottom, therefore it is raised and lowered after the manner of a ladder. From an engine-house built above the drop, flat ropes are fixed to a cross-bar at the top of the jib. The machinery within the engine-house consists of a cast-iron fly-wheel, sixteen feet in diameter, appended to the axis on which the ropes are wound: the laden waggon swings on the cross-bar, and as it descends the balancing weight of five tons ascends from a shaft dug in the ground several feet deep,

in the rear of the engine-house. As the empty waggon ascends to the summit of the drop, the balancing weight sinks again into the shaft, of which, by the way, the latter being partly filled with water, the action must be attended with diminished effect, although no doubt it is adjusted accordingly. The peculiar description of this weight is admirably calculated by acting equably, to avoid any jar or jerk, which might otherwise injure or break the machinery, or at all events be attended with bad effect; the identical principle is that of the tail of a boy's kite; consisting chiefly of enormous rings or links of iron, which being raised from the ground one after another, destroy the effect of oscillation, without diminishing the power of gravity. I was informed that each circular link of this massive chain, and of which there are a score or more, weighed two and a half hundred weight; I hastily measured one, sixteen inches in circumference, and eleven inches and a half across the inner diameter.

The effect is grand, standing in a convenient position, to see and hear this enormous mechanical power in action: first, the waggon, weighing, together with its load, four tons, not reckoning the frame or cradle on which it stands, and two men beside it, altogether slowly descending from a height of upwards of fifty feet, down upon the deck of the vessel below; and with the sweep of a radius of fifty-five feet, describing its graceful periphery in the air, as the stupendous bulk of the counterbalancing chain is dragged upwards, as it were, reluctantly, with a writhing motion. The creaking and groaning of timber, the stress on the machinery, the grating of the brake, the rattling of the huge

links, the clash of the hammer against iron bolts, and the thundering crash of the coal falling through the bottom of the waggon into the hold of the vessel, are all sounds that excite the senses and rivet the attention; while a further source of contemplation arises by thinking that the same operation is repeated over and over again during every working day throughout the year, and yet, after all, that the whole establishment altogether is but as a speck in the balance, compared with the vast, incessant shipments that cross the bar of the Tyne, whose banks on either side, the whole distance from Newcastle, are studded with chimneys. These vomit into the air a dense mass of smoke and impurities, till nature herself seems, as it were, compelled to receive again and disperse in space, in the form of one black, huge cloud, the noxious particles and effluvia rejected by the saturated atmosphere.

CHAPTER XXIII.

CARLISLE AND ANNAN NAVIGATION CANAL.

Accelerated rate of Towing Boats on Canals—The Arrow sheet-iron Passage-boat; a Voyage thereby—Port Carlisle—Accommodation — The Jetty—Annan Water-foot — “The Newcastle” and “City of Carlisle” Liverpool Steamers—Untoward Arrangements —A boat-load of Passengers—The Works at Maryport—New Drawbridge—Sands—Tide-light—Extraordinary mode of launching Vessels broadside on—Inconvenient embarkation—A Dutch-built Steamer—A Scotch Gentleman on a Journey.

THE Carlisle and Annan Navigation Company preserve a communication with Liverpool, by the canal cut about a dozen years since from Carlisle, through a flat country, to the Solway Frith; from whence two powerful steamers, the “Newcastle” and the “City of Carlisle,” alternately perform the remainder of the voyage. The canal is wide and handsome; the basin sufficiently capacious for more lighters than at present resort to it; the dimensions of which, bringing about a hundred tons up the canal, appear almost *ad libitum*; generally too large to float with their full freight on board. Any vessel, with a single mast, is here called a lighter; sometimes even those with two, rigged galliot fashion, with a small mizen: on different parts of the coast they are dignified with different titles, though as regards these Carlisle boats, be they lighters, smacks, sloops, billyboys, or what not, some are in size equal to small brigs.

Within the last few years persons interested in

the locomotive facilities of our canals, and urged by the vain hope of competing successfully with steam, have laboured hard to substitute a new description of boat towed by horses ; and this object is certainly performed nearly twice as fast as was wont to be accomplished : not only are boats now built with a view of gliding through the water with the utmost possible rapidity, but instead of the heavy breed of lumbering brutes formerly on the towing-paths, old high-blooded hunters are employed, and moreover kept for the purpose in high condition.

The sheet-iron boat, the Arrow, by which the Company convey their passengers to the steamers lying in the Firth, is one of these fast vessels ; besides which, in other parts, the chief ones are those from Glasgow to Paisley in Scotland, from Preston to Kendal in Lancashire, and from Goole to Knottingly in Yorkshire. The two latter boats are elsewhere described.

The Arrow departs every morning from Carlisle Canal Basin, and returns again in the afternoon, for the purpose of waiting upon the Liverpool steamers, the City of Carlisle and the Newcastle, taking passengers backwards and forwards to both those vessels. The point of her destination, "Port Carlisle," on the shore of the Solway Frith, is about a mile and a quarter from the village of Bowness, and just at the commencement of the ford by which people cross over to the Scotch coast at low water. On the opposite coast, farther to the westward, is the Annan Water Foot, or mouth of the small river leading to the town of Annan, and here the steamers touch, both up and down, to land and receive passengers.

I performed a voyage by the Arrow down the canal to Port Carlisle, leaving Carlisle at ten o'clock in the morning, towed by a couple of horses; the fare, one shilling and sixpence. The Arrow, as has been observed, is a sheet-iron boat, and, according to my notion, the best calculated for moving quick through the water of any I have seen. Her dimensions are—length, sixty-six feet; breadth, five feet and a half; drawing, with forty people on board, and a great deal of luggage, only twelve inches water; when light, as I was informed, she floats at nine inches: she was built at Glasgow, and from thence sent all the way to Carlisle on wheels. On the present voyage we were driven by a postilion, who had previously served with the proprietors of the Glasgow and Paisley establishment; the description of animal used was that of a stout, quick post-horse, the pace ten miles an hour; though we were delayed by the locks, of which there are six, and expended exactly two hours on the way, be the distance twelve or be it thirteen miles. The Arrow, the latter end of July, had only been on the line a few weeks.

A great degree of excitement was at first created by the novelty of the conveyance, as well as by the speed, which exceeded that of the old wooden boat previously on this canal, by just double. Nevertheless, though people were anxious to go on board her, she was, to all appearance, so cranky,—toppling and rolling from side to side so awfully when empty, that people took a panic, and many declined on any account to venture. Certainly, were she to capsize, there would be little chance of escape, for passengers stowed away under an awning, and closed in on

all sides, like sheep in a pen; very little, however, is to be apprehended on that score, for she is as buoyant as an Indian canoe, which latter vessel, as is well known, gets rid of a passenger now and then, like a kicking horse, pitching him out into the water, without herself approaching near the point of upsetting. A tolerable load on board brings the Arrow sufficiently low in the water, when all danger vanishes, and she is perfectly steady. The awning effectually resists the weather; though, as the framework is as light as can hold together, no passenger is allowed to place even the smallest article on the top.

The postilion rode the hindmost horse, driving the other before him with a gig whip and light rope reins; and certainly the ease and rapidity with which the Arrow cut through the water were greater, *cæteris paribus*, than either of the boats on the canals in Lancashire and Yorkshire. It seems extraordinary that, of all materials to form a boat, sheet-iron is selected, but a trifling calculation makes clear in theory what practice daily confirms; and besides others of many descriptions gradually creeping into use, iron boats are now beginning to occupy the line of communication on the Ouse and Humber, between Selby and Hull. Since the completion of the railroad from Leeds to Selby, and the consequent increase of river passengers from thence to Hull, the more it becomes necessary, as is elsewhere observed, to counteract, as far as practicable, the principal objection to travelling on that line, namely, a navigation, impeded by the moving sands and shallows of the river.

Port Carlisle affords not much choice of amuse-

ment; a circumstance to be deplored by those who have the misfortune to remain there waiting for the steamers;—however, at a good-looking hotel called the “Solway Inn,” the traveller may, at all events, calculate upon finding a sufficient supply of gin and tobacco,—or, if inclined to be contemplative, he may indulge in an airy walk upon the Jetty, which latter structure extends, though lightly framed, a very considerable way into the Frith.

Intending to return in the Arrow with the passengers of the City of Carlisle, it was some disappointment to find, not only that that vessel was later than usual, but to hear that an untoward event had taken place sufficient probably to prevent her arriving that day at all. From the extremity of the Jetty, as I perceived the smoke of two steamers instead of one gently ascending on the other shore of the Frith, it was evident that both vessels, the Newcastle and the City of Carlisle, were lying together at Annan Water-foot. By what accident, inasmuch as they plied in opposite directions, they thus got together, I did not learn; not for want of taking pains to inquire, or receiving answers to interrogatories, assigning abundance of reasons: of these, the people on the spot, who, by the way, were all interested, were prodigal enough, though the real cause, whatever it might have been, they kept to themselves. In the meantime the two steamers showed no disposition to move either way, and as it was not the purpose of the commander of the Arrow to return to Carlisle without the Liverpool passengers, here we were under the necessity of remaining.

After waiting a full hour, the City of Carlisle got under weigh, and came safely alongside, barring

a trifling casualty that happened to a heavy lighter she had taken in tow. The skipper of the latter, miscalculating the rate he was dragged through the water by the steamer, contrived to enliven the spectators by running his vessel bump on the Jetty-head. The passengers now all got out of the City of Carlisle, expecting immediately to proceed up the canal,—but no such thing. The passengers from the Newcastle also were expected to arrive, and till they came, he of the Arrow refused to budge. Another hour we were doomed to wait; all which time the Newcastle continued to smoke at Annan Water-foot. Disinterested people were busily occupied in the solution of the same problem; namely, why, in the name of simplicity, the two vessels having remained so long together, the City of Carlisle had not brought over both sets of passengers, a heavy Dutch-built vessel, capable, according to appearances, of stowing away all the inhabitants of the town of Annan! In the present case it was the lot of the passengers of the Newcastle to suffer on account of a misunderstanding, whatever it might have been, between the two captains, and thence doomed to an adventure by no means agreeable; namely, to cross the Solway Frith in an open boat against wind and tide.

Two small skiffs were at last seen bobbing up and down, and making head slowly towards the Jetty. Both arrived quite full of people, passengers of the Newcastle, who landed in a highly discontented mood, and marched on board the Arrow with bags, boxes, and bundles, as many as could obtain seats, and, over and above, more were obliged to stand at the head and stern. With this ballast the Arrow

glided up the canal as steady as a barge. Whenever it was necessary to detach the horses, recourse was had to a very neat expedient, I have not seen adopted in other boats of the same class. By pressing on a bolt, the eye of the trace is instantaneously thrown off the hook, by a contrivance acting precisely like the trigger of a cross-bow.

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The works at Maryport, which last year were progressing rapidly, are now stationary, whatever causes may have tended to discourage the energies of the speculators. With the exception of a neat, new wooden drawbridge, lately thrown across the river, with machinery such as is applied to those at the docks at Hull, very trifling progress on the spot is observable. At the former period the excitement caused by the Carlisle and Annan navigation was in full operation, at the same time those interested in the prosperity of the town being anxious to connect it with Carlisle by a railroad; neither was any exertion spared to enlarge and improve the harbour.

Thirty or forty years ago half-a-dozen small cottages at the mouth of the river Ellen formed a hamlet, then known by the name of Ellen Water-foot. Maryport now may fairly be called a thriving little sea-port, notwithstanding the limited dimensions of the river, which diminishes so rapidly in its course to the sea, as to trickle entirely out of sight along the broad, flat sands at low water. In fact, its breadth at the bridge, in the middle of the town, is not more than thirty yards; its depth, though exhausted at its ebb, twenty feet at spring tides. A ridge of sand hills, long since thrown up by the sea, and which, as they receive continual accumulation,

testify the disposition of the ocean to encroach no farther, form a barrier in front of a large flat space of land adjoining the town, and appropriated to the works in question; here the principal dock has been commenced, the excavation of which was nearly finished last year. The stone used in the side walls, the ordinary material on the spot, is very inferior,—it is red freestone; exposed to the air it appears to decay, not only rapidly, but in an unusual manner, rather dissolving and melting away like sugar; however, the stress of the sea upon the works is so little, that a coffer-dam of wood, by no means of massive construction, has stood many years, and even grown ancient on its original foundation. At the extremity of the pier is a tide-light, for the purpose of showing when a sufficient depth of water renders the harbour accessible; the building, however, is so small, that a man can with difficulty ascend to the top by a ladder.

Besides the considerable number of vessels which arrive and depart, many of two and three hundred tons burden are built and launched at the port, although for the latter ceremony recourse is necessarily had to rather a singular expedient. The vessel being on her slips alongside the river, owing to the narrow breadth of which the usual mode of allowing her to glide in head or stern foremost is not practicable, the advantage of a high tide is taken to fling her over bodily, broadside on, into the water. The surge and concussion inflicted by the manœuvre on the bed of the river, it is said, is tremendous,—like the menace of an angry whale in the sea; in spite of which some people are naturally so inclined to adventure, that on these occasions,

although the reaction is sufficient to splash and force the water over the tops of the houses, a few individuals, eager to play the part of Jonas, are not unfrequently launched within her. The blow is usually submitted to by all parties patiently, and the vessel rights herself immediately after her fall.

The two steamers, referred to in the last chapter, call at Maryport in their way to and from Liverpool for passengers. I accordingly, during the present summer took occasion of being conveyed by the Newcastle to Annan Water-foot. There is no house of call or office in Maryport, by which the necessity is entailed on the passenger of arranging all his preliminary affairs with the boatmen, who exercise a sort of independent agency with regard to the vessel. The ceremony of embarkation at the port, even at high water, is not agreeable; at low water the steamers are unable to approach within half a mile of the shore. It happened to me to embark under the latter circumstances, and though with plenty of spare time on my hands, and all necessary preparations anticipated, I was unavoidably driven at last by the tardy measures of the boatmen into a hurry; finally, my luggage was wheeled a furlong from the inn through the mud, at low water, in a wheelbarrow, to the water-side; whence I was carried on a man's back to the boat that lay in the creek; and, notwithstanding all this overwrought exertion, the steamer subsequently lay to for a considerable time for want of water. The Newcastle, as well as the City of Carlisle, is built Dutch fashion, and of shallow draft, with a view to counteract as much as possible such contingencies as the latter, which are not unfrequent during this navigation. I think I never was on

board a steamer whose engine was so powerful in proportion to her strength ;—while on her way, her very sides groaned and laboured under its force.

On arriving at Annan Water-foot, a safety double coach was waiting to convey passengers to Dumfries, according to the stipulated arrangement of the proprietors of the steamer ; but as there happened to be more of the former than the carriage would contain, the coachman drove away, leaving a great many grumbling at the water-side. People in this case bore disappointment with different degrees of philosophy, those being loudest in their remonstrances, as is usual, who had least reason to complain. Among the rest, one Scotch gentleman who travelled *en famille*, had anticipated the removal of a mountain of packages, on the top of which his children were now seated, while his wife and maid-servant stood close by. As the carriage trundled merrily away, the last sounds of discontent that fell upon my ear were the lamentations of this person, accompanied by threats of vengeance on the authorities, on being left behind ; the latter uttered, in broad Caledonian accents, and with appropriate air and attitude.

CHAPTER XXIV.

SHAW'S WATER-WORKS, GREENOCK.

Objects to be effected—Their Completion—Appearance of the Waterfalls—Dimensions of the Reservoirs—The Dam and Jetty—Self-acting Sluices—Their admirable performance—Modes of Action by means of the Float and of the hollow Cylinder acting as a Weight—Domestic supply of Water—Filters—Mode of cleansing the same—Their Formation—Casting Sheet-lead.

FEW works, either public or private, are more worthy of inspection than Shaw's Water-works at Greenock, notwithstanding that the scheme, as a matter of speculation, has not been attended with success. Nevertheless, all originally proposed to be done by the engineer is fully effected, for since the year 1827 the town has been amply supplied with water, both for domestic purposes, and as an agent of mechanical power.

The town of Greenock, situated on the Clyde, at the foot of land rising abruptly to a considerable elevation, was, previous to the year 1824, scantily supplied with water; in consequence of which deficiency, the first measures were then taken to remedy the defect. A small stream, or burn, descending the brae, from a height of five hundred feet, discharged itself into the river a few miles below, forming a channel through which, no matter how great the abundance of water in rainy seasons, all was exhausted, without use or profit to the inhabitants of the vicinity;—the primary object to be effected,

therefore, was to augment the resources of this stream by drainage, and then to economize the water so obtained by artificial lakes or reservoirs. A watercourse of twelve feet in width, and of declination to afford as many cascades as possible, sites for water-wheels for any description of mills that might be afterwards built thereon, was next to be constructed. This watercourse, or aqueduct, was accordingly made and thrown open in the year 1827; the quantity of water stipulated by the joint stock company to be supplied thereby being at the rate of twelve hundred cubic feet a minute for the day of twelve hours; according to which regulation the water is consequently set on every morning, and stopped in the evening, the stream being directed during the night to replenish the reservoirs. In the meantime the aqueduct, which commences on the top of the elevated ground three or four miles from the town, is conducted by a circuit of nearly six miles round the mountain, and then directed downwards, so as to gain nearly every perpendicular foot of fall: the intervening space between each cascade deviating only from the true level by as much as is barely sufficient to propel the stream onwards towards the next. The cascades in the line are each about twenty yards in length, of different angles of declination, in number about fourteen or fifteen, but very few up to the present day are let; under other circumstances, had the scheme been attended with success, it was calculated that, inasmuch as an extension of drainage is capable of being accomplished, if required, to an almost unlimited extent, the water in the reservoirs might have been made equal to the supply of another line to the westward: which

augmentation would have called for a quantity of two thousand four hundred cubic feet per minute; and eight years' subsequent experience has fully shown that the latter object is feasible.

On a walk, in a fine evening, up the brae, it is beautiful to see these mimic waterfalls as they glitter in the sun, here and there sending their smoke and spray aloft from among the flowery heather, as one proceeds from the town towards the main reservoir. The circuitous course of the aqueduct from the town to the upper level, namely, that of five hundred and twelve feet, is about a mile: the ground then continues to rise gradually as the path leads across a tract of moorland, till, on attaining the summit of the mountain, the principal lake or reservoir, called Lake Thom, in compliment to the engineer, is seen below, covering a surface of two hundred and ninety-five imperial acres, and estimated to contain upwards of two hundred and eighty-four and a half millions of cubic feet of water;—equal, at the rate of twelve hundred a minute, to more than five months' full supply for the mills on the line. Thence the water passes through self-acting sluices into other auxiliary reservoirs, the latter being three-quarters of a mile farther removed, and from the extreme distance, namely, about four miles from the town, it is carried, as has been before stated, by a circuitous artificial course round the hill.

Notwithstanding the high elevation of Lake Thom, as the ground rises considerably around it, nature had already contributed in great measure to facilitate the drainage to which it entirely owes its existence; whence the chief part of its artificial formation is a dam of earth raised sixty feet above the bed of

the rivulet, and about five hundred yards in length. From the middle of the dam a wooden jetty protrudes, at right angles, about twenty-five yards into the lake. At the extremity of the jetty is constructed a strong screw purchase, by which the main sluice is raised. At the farther end of the dam, or embankment, are the self-acting sluices, by which the water, so soon as arrived at a certain level, passes away to the next reservoir. The level determined on here is forty-eight feet; on the evening in question, as I stood upon the Jetty, it was, by the scale of depth, forty-six and a half feet;—the reservoir next in dimensions contains forty imperial acres in extent, and fourteen and a half millions cubic feet of water.

The operation of the several self-acting sluices is really admirable, whereby the waters of a small, inconsiderable stream, augmented by judicious drainage, are not only economized in the reservoirs aforesaid, but are caused, by artificial means, to perform as it were a series of evolutions, as regularly as if in obedience to the order of nature. The self-acting sluices may fairly be said to exert a power as varying and incessant as that of the stream itself, whether trickling along lazily in the drought of summer, or plunging impetuously forward in the middle of winter; and these sluices, in fact, though specimens of human art, consist merely of forces purely natural: which forces effect at all times the equilibrium required by acting one against the other. I will not attempt to detail their mechanism, otherwise than by briefly stating their modes of action.

Of these modes, those that particularly engaged

my attention were two: that of the float, and of the hollow cylinder acting as a weight.

In the first instance, that of the float may be said to perform the office of the common ball-cock, but on a larger scale. An aperture, or pit, communicating by a drain with the stream or lake, is dug in the ground. The water, when redundant, runs off by the said drain, and entering at the bottom of the pit, raises the float, which is suspended therein. The float being appended to a chain, of which the other end is fixed to the valves of the sluice, as it rises, consequently acts upon the chain, so that the valves open, and the water escapes, as required.

The other mode, that of the hollow cylinder, is the same principle as the latter, though reversed in its action, the water entering at the top of the pit instead of at the bottom. The pit, the communicating drain, and the chains and valves, being as before, the desired end is thus attained by the descent of the weight contained in the vessel, instead of the ascent of the float. The application of the weight is an ingenious contrivance, merely the cylinder full of water; a hole at the bottom being always open, so that the weight is efficient only so long as the water runs in faster than it escapes from the aperture; on the contrary, the moment the ingress of the stream is less than its egress, the vessel, losing the weight of the water, becomes non-effective.

Besides the above-mentioned aqueduct and cascades, water for the supply of the town is derived from different sources, and from a spot more contiguous. The necessary supply for the domestic uses of the inhabitants, originally estimated at the

rate of two cubic feet for each individual per day, for a population of twenty-five thousand, is conveyed by a stone conduit fifteen inches square into a circular basin a quarter of a mile from the town, containing a full day's supply. The water is discharged into this basin by five spouts, proceeding from as many filters, in passing through which it is previously subjected to the process of filtration ; and it is interesting to observe the ingenious expedient by which this useful operation is performed on so large a scale.

Each of the filters consists of a pit fifty feet long, twelve wide, and eight deep, containing a bed of sand five feet in thickness, through which the water passes downwards. As by continual use a sediment is necessarily formed on the surface of the sand, means are adopted to cleanse the filter by changing the course of the stream, and causing it to pass upwards through the sand from the bottom, thus carrying away the sediment aforesaid. A single man is able to perform this service in half an hour, standing, while the reversed current is in action, on a plank laid on the sand, during the whole time stirring the sediment incessantly with an iron rake. Each filter is constructed with a view to the above operation ; and in order to preserve a clear space below, shallow drains, about six inches in depth, intersect the bottom, one lengthwise, and several others across ; these drains are covered in the first instance by a layer of large stones, then others smaller, next others broken of the size required for a road, and so on gradually decreasing till no bigger than peas. Upon this foundation rests the layer of sand aforesaid.

Strolling about the streets in Greenock, while waiting the arrival of the steamer, I saw some workmen occupied, in a building adjoining the Quay, in the simple operation of casting sheet-lead. The dimensions of their frame were nineteen feet six inches in length, by six feet two inches in breadth; the surface of coarse sand being levelled by a flat iron, passed over it by hand. From a trough, at the head of the frame, extending its whole breadth, the melted lead was poured by a couple of men who tilted it, by means of chains fixed at the ends of two levers; the trough was previously filled from the cauldron, with iron ladles; heat being meanwhile applied by flues from the furnace, to prevent the lead from cooling under a process so slow. The newly cast sheet being rapidly levelled by a wooden bale, at that particular instant of time when its consistence suited, a chalk line was then applied, and the rough edges pared off by a common knife.

CHAPTER XXV.

A L L O N B Y.

The Ship Inn—Cheap Living—An Arrival—A Mystery—An Adventure—Lovers in a Quandary—A disputed Case of Identity—Billing and Coing—Female Curiosity—Ladies bred in high Society, and on high Hills—Relative bearing towards each other—Arrangement of Time—Way to pass a Honeymoon—A Ride to Gretna—Original Marrying-house—Gretna Hall—A Clergyman Landlord—A Sub-Clergyman—Marriage Register—House and Garden.

THE village of Allonby, perhaps owing to the increase of the town of Maryport, only six miles distant, or because the medicinal waters of the Gillsland Spa, situated to the eastward of Carlisle, produce a counter attraction; or whether the neighbouring gentry be less inclined to festivity than formerly, at all events is now deserted by the principal families who, a score of years ago or more, made it their place of resort in the summer; therefore it is not to be wondered at that the village remains, as regards improvement, just in the same state as at the period alluded to,—and such is precisely the case. The spot, nevertheless, admirably calculated for marine residence, affords agreeable rides and drives, sands peculiarly good, and an extensive prospect, bounded in the distance by the mountains that overhang the Solway Frith, and the elevated land in the Isle of Man.

The only house of entertainment suitable to the wants of visitors is the Ship Inn;—in point of size and appearance, an ordinary country alehouse; in

front of whose windows, and not exceeding a few yards in distance, a row of stepping stones, as if for the exclusive benefit of those who wear shoes and stockings, stretch across the principal drain of the village, where pigs and ducks dabble amicably together in the black stream. Within,—the apartments consist of a dining and drawing-room, both of more ample dimensions than accordant with the humble elevation; the former of these having served the purpose of a daily ordinary, the latter of card playing, and occasionally dancing, from time immemorial. Extravagance of space in one part of the house is compensated by its curtailment in another, the bedrooms being arranged on the smallest possible scale; these are in fact garrets, hardly exceeding ten feet either in length or breadth; across the ceilings huge uncovered beams, like the timbers of a seventy-four gun ship, deprive a tall man of the satisfaction of either walking or standing upright.

The terms of entertainment are, as may be imagined, conformable to the accommodation; that is to say, five-shillings a day for every item of expense attendant on board and lodging; for this small stipend the host provides his company with a table d'hôte, whereupon breakfast is served from eight to nine o'clock, dinner at three, tea at six, and supper at nine. Though one part of the world are generally inquisitive as to how others live,—in this case, considering that the landlord is obliged to pay house-rent and taxes, the guests, as it would appear, do not trouble themselves with his affairs. A small party of quiet people generally congregate here during the summer months, seeking, on their part,

social retirement, and receiving, from the host, the utmost attention and civility.

Fortunately, when a visiter for a couple of days at the Ship Inn, affairs happened on that occasion to glide in a more lively stream than ordinary, owing to a recent event, which afforded matter of surmise and a theme of incessant conversation. A recently married pair had arrived in the house from Gretna Green, for the express purpose of ruralizing and making the most of each other's company; wherefore,—not only was everybody on the alert to discover who the young married couple could possibly be—but there was, moreover, a disputed question of identity,—a sort of romantic episode appended to the history, that inflamed curiosity beyond measure, and rendered all, the single ladies especially, half mad to discover the mystery.

A few evenings before, the Carlisle mail being on its way through the dreary mountainous district between Kendal and Penrith, had barely arrived at the foot of the long steep ascent called Shap Fells, when the lowering black clouds, which already enveloped its summit, appearing suddenly to burst in twain, poured forth a deluge of rain, accompanied by flashes of vivid lightning;—loud peals of thunder crackled in the firmament, and the whole region of air around was swept by a tremendous hurricane. The coachman, half blinded by continued flashes of fire, and volleys of stinging hail, exerted himself manfully to hold together four gallant blood-horses, and preserve a straight course; but the efforts of both man and beast were unavailing;—by dint of main strength alone he kept his seat on the box, mean-

while the winds might be fairly said to take charge of the cattle, by blowing the reins almost out of his hands, and night having now spread her sable mantle around, after a hard, determined struggle, and having surmounted many serious difficulties,—at last, in one black interval of darkness,—over went the Carlisle mail into a ditch. Report, with many tongues, relates, that at this awful moment, even in the midst of the conflicting elements, and notwithstanding, moreover, that it was pitch dark,—the little god of love, of ubiquitous presence, was seen to smile. At all events, an interesting young lady, accompanied and protected the whole of the way from London by a gallant young gentleman, both on their rapid way to Gretna Green, were the only passengers within the vehicle, and they, barring discomfiture and jumblement, escaped unhurt.

What were the young lady's feelings in this delicate and untoward predicament is the province of young ladies alone to imagine,—without an abigail,—no shelter but that of the capsized mail coach,—insufficient space to stand upright, and,—nothing at all to sit down upon. Her lover, poor fellow, was not less awkwardly situated,—but he was a man, and the softer sex, at all events, supposing him able to take care of himself, will of course feel little interested as to what became of him; but there she remained, and there he remained, and there they both remained imprisoned together, as it is said, for full three-quarters of an hour. Finally, the mail-coachman having spliced his fractures, and otherwise repaired the damage, drove away without them; for the young lady, by this time far too much terrified to proceed by the same conveyance, now pre-

ferred to throw herself altogether on the protection of her lover. The lot of these unfortunate young strangers, thus to be left alone, in the dark, and at the mercy of the weather, was surely much to be pitied, whatever might have been on that evening their destiny;—the whole tale, as it came to my ears, is merely hearsay; and as to what other folks relate, I will not vouch,—I can only hope, and so I do sincerely, provided the adventure be as I have related it,—I can only hope, I say, that the lovers found their way to Penrith; if so, they obtained, no doubt, accommodation suited to their wants, and at least shelter,—for there the inns, as I have the satisfaction to testify, are most particularly warm and comfortable.

To return to the Ship Inn at Allonby. It will readily be believed, upon the foregoing premises, that the visitors in the house, who, let it be clearly understood, were acquainted with all these particulars, not only acknowledged in the first place the tenderest possible general interest in the adventures of the two young pilgrims, but were most categorically inquisitive in matters of detail; particularly as to what became of the nymph and her swain, from the unlucky moment of the overturn to that of their safe arrival, the next day or the day after, at the shrine of bliss at Gretna;—and it follows, no less as a matter of course, that upon the advent at the inn, of two persons who, according to appearances, might at all events very well be mistaken for the former, that all were dying to discover, first and foremost,—whether this young couple were that young couple, to the end that they might, in the next place, provided the identity were established, proceed heart

and mind to ferret out their names, and all the rest of their private history.

Matters had come to this point when I arrived at the Ship Inn, the young pair having strictly preserved their incognito;—meanwhile their occupations and dispositions bore so little affinity with the rest of the inmates, that, notwithstanding all were well-meaning, agreeable people, yet, somehow or other, the two sets, ill assorted at least under present circumstances, had already fallen into disunion; a classification, as if proceeding sympathetically and involuntarily, had taken place; and each party, actually without the trouble of arranging a dispute, had, in point of fact, absolutely sent the other to Coventry. For my part, I had the good fortune to be on amicable terms with both; feeling that each, though under different circumstances, were entitled to much consideration,—the single ladies especially, having no one whereon to bestow their love and attention, thence, alone, certainly deserved the meed of sympathizing pity; and, poor things, I can truly declare that, although now and then one pricked her finger in anxiety to catch a furtive glance at the bride and bridegroom, and the eyes of all, even while they threaded their needles, were never positively averted, yet their good breeding uniformly prevailed over the pains of curiosity, and entirely repressed all appearance of vulgar, ill-restrained scrutiny. Now and then—but perhaps that were fancy—I thought I could perceive slight telegraphic looks pass from one to the other, nay, even a sort of galvanic radiance, that flitted in twitches, like shooting crystals across their foreheads, as if in painful recollection of preferences ill-bestowed or unrequited, or

perhaps from eagerness to read in silence and explain to one another the precise extent and meaning of the hieroglyphics in which the other party exchanged rapid, intelligible sentences.

The bride—a lovely young creature! more the pity that all such lovely young creatures are not brides—may surely on her part be excused, even though in pastoral air and attitude she devoted incessantly her whole thoughts and attention to a handsome bridegroom; for where is the young lady to be found who, under similar circumstances, would not, with very trifling variation, do likewise?—though no doubt, at such a time, to display even the most slight air of satisfaction and triumph towards unmarried ladies then present, is not altogether excusable; nay, I will not call such demeanour otherwise than absolutely aggravating and provoking; and I must confess that, now and then, certain side looks of the young lady towards her female companions, indisputably partook of such sort of expression. Evidently brought up in high society, and finding herself among ladies reared on Cumberland high hills, she did certainly seem inclined to behave as if they were sheep or cows, or any other dumb animals, or, in other words, just as if they had not been present;—no wonder, therefore, that the latter were ill-pleased thus to be treated altogether as nonentities, and remained unwillingly passive while, with the utmost nonchalance, the wilful little damsel sat carelessly shampooing the bridegroom, and passing her tiny fingers through his curling hair.

I overheard, involuntarily, on more occasions than one, the sotto voce conversations of the enamoured pair, of which, although the warmth of a mutual

attachment might have rendered them interesting, nothing that fell on my ear might not, in point of fact, have been just as well spoken aloud. I cannot, however, reconcile to a sense of propriety to record, trifling as it may be, any private discourse; besides, the evidence of one's own eyes and ears on such delicate subjects, even if credited, ought immediately to be forgotten. Who they were, whence they came, how they travelled, or what were their previous adventures, still, as far as I know, remains a mystery, notwithstanding the company at Allonby sedulously exerted themselves to obtain information; in fact, no other topic was discussed, while I remained in the house, absolutely from morning to night; that is to say, whenever the parties concerned happened to be out of the room. Ample time, moreover, it must be acknowledged, was allowed for the investigation; for the young ones, instead of accommodating their habits to the rules of the house, and conforming with the established hours of the public table, had superseded all such ordinary courses. By an arrangement of their own, they made their first appearance every day at one, dined by themselves at half-past eight, and—went to bed at ten.

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My own curiosity, I freely confess, struck by the epidemic excitement raging in the house, grew feverish accordingly; not with reference to the private affairs of these young people, but from a wish, being in the neighbourhood, to visit the celebrated spot—

——— “That mystical bourne,

From whence maidens and bachelors seldom return”——

see with my own eyes a shrine equally famous with

that of Thomas à Becket, and become partially acquainted, on authority, with the observances of the pilgrims. I therefore took advantage of a fine morning, hired a horse at Carlisle, and rode to Gretna.

The old original marrying-house is in the village of Springfield, nearly a mile from Gretna Green, an exceedingly small public-house, kept at present by one John Sowerby, as notified by a square sign, nailed against the side of the house, over the door. The house, since the days of old David or Daniel Laing, the notorious blacksmith, has undergone no alteration, and the same business as formerly is transacted under its roof; but the matrimonial branch is now confined almost altogether to the poorer classes;—although the officiating clergymen are various, many is the epithalamium that in humble life still resounds within its walls. That the edifice, small as it is, is large enough for all reasonable purposes, is evident by the numerous scribblers in prose and in verse who, in various ways, have been pleased, on the windows and on the walls, to bear testimony to hours passed agreeably, and express otherwise their entire satisfaction. Among these I was informed (for the room in question, during my visit, was occupied by a newly-married pair) may be seen the handwriting of the late Lord E——.

Gretna Hall, a very respectable-looking country inn, is immediately contiguous to Gretna Green, which latter is, as many people know, a small rural common, nine miles from Carlisle. At this house all the modern matrimonial affairs, among the higher classes, have of late years been conducted; and hither all inquiring strangers are directed point

blank ; besides, a painted board points out the way from the Green to lovers and travellers, along a wide, straight drive, leading to the door. The establishment possesses considerable advantages over the old one—indeed the one is a comfortable country residence, whereas the other more resembles a pot-house, such as the “Jolly Sailor,” or “The Three Loggerheads,” in a seaport-town. The new clergyman also, who may be said, phoenix-like, to have arisen from the ashes of the old one,—for whether or not the ancient Daniel or David departed in a fit of spontaneous combustion, is a point, I believe, hardly determined,—exists under terms of comparison with his predecessor equally favourable. He is not only clergyman, but landlord also—both persons in one ; whence it arises, partly proceeding from his own moral qualities, and partly owing to his office of landlord, which confines him to the spot, that he possesses those qualifications that every Gretna Green clergyman ought to have,—namely, he is at all times to be found in a hurry : and, finally, when found, sober, and able to perform his duty. In person he is a slight, fair, good-looking man ; in age about forty, of prepossessing manners, and mild and respectful in his demeanour ; and of him it may be particularly remarked, that without bearing the mien of a dignitary of the church, he seems a person qualified to encourage a timid bride, and allay the scruples of any young lady his customer, provided she chance to bring any so far along with her. On the present occasion, he was dressed in the style of a respectable layman or farmer,—altogether in rural costume, namely, a clean, tidy, light-coloured fustian shooting-jacket and shooting etcæteras.

In case of emergencies a qualified deputy or sub-clergyman resides on the spot, in the person of a slim, civil, harmless-looking lad, his son, who, were it not that youth, where the fair sex are concerned, seldom detracts from personal merit, might be thought too young; he states his age to be two-and-twenty, though he looks hardly out of his teens. At all events, it is well in matters of love to insure against the possibility of disappointment, and prudent thus to have, in case the old man happen to be out of the way, a young one at hand. No matter by which of the clergymen the everlasting knot be tied, whether the young one or the old one, a regular entry of the marriage is made in a book kept for the purpose; this entry, after some months, is copied into the register; in the mean time, the register alone is submitted to the inspection of inquisitive strangers.

The house, though comfortable, is on a moderate scale in point of size; the apartments are scrupulously tidy, and the furniture excellent; the site, as a country residence, equally calculated for retirement or meditation, exultation or repentance. While the casual visiter is exhilarated by a refreshing airiness and agreeable rural scenery, every possible accommodation is afforded to lovers that lovers can require;—the little garden, especially, embellished with its flowery banks, affords a retreat worthy of Calypso, and the arbours, literally impervious to the eye of a robin, are such as wherein even the most fastidious Rosamond can, I think, hardly, with justice, if accompanied by a suitable helpmate, complain of her bower.

CHAPTER XXVI.

A JOURNEY FROM WORKINGTON TO KENDAL.

The Lake Tourist Stage Coach—The Coach Office—A Little Man doing Double Duty—A Scramble for Places—Morning's Start—Town of Keswick in a Bustle—A Coach laden without mercy—Loss of a Linchpin—An adipose Auxiliary—A bad Mode of getting up a Hill:—A worse mode of getting down—An Overturn—A Seat on the Box not always to be envied—A frightened Lady—A Dispute—A fat Man in a pucker—A Procession—Stage-coach Passengers—The Salutation Inn—Female Pity—Coach Proprietors at loggerheads—Arrival at Kendal—Approach to Shap Wells—Tricks upon Travellers—Sets of Company; high, low, and middle—A temperate Supper-party—A Way to drink Ginger Beer—The Baths and Hotel.

WITH a feeling of considerable satisfaction a traveller along the western coast first receives the intelligence that, in addition to the actual pleasure of locomotion in fine weather, an opportunity is afforded him of seeing, in the course of one morning as it were, gratis, most of those beautiful features of the country in succession, which so many thousands of people leave their own homes, and take so much trouble, on purpose to visit,—I mean the principal lakes and mountains of Cumberland. Yet such is the case, for the "Lake Tourist" stage-coach leaves Whitehaven every day during the summer, and proceeds through Workington, Cockermouth, Keswick, and Ambleside to Kendal. Mounted on the hinder part of a coach, on my way southward to Whitehaven, I heard two persons conversing on

their projected excursion by the above conveyance ; one, a stout, heavy, elderly man, the other, his friend, both travelling together on a party of pleasure ; so keenly bent were they on the expedition, and anxious to obtain a choice of seats, that they preferred going on through Workington as far as Whitehaven, and returning again the next morning, to remaining all night at the former place ;—for my part, at all times disinclined to a scramble, I got down at Workington, satisfied, as the Lake Tourist departed every day, to take the chance of a vacancy.

As sundry bills and placards advertised an agency at Workington, I had no sooner alighted than I proceeded to secure a place, but, though the said bills were printed in exceedingly large letters, I had much difficulty in finding the coach-office ; and wandered about a considerable time, till I found myself in a small street, where, after inquiring of many people to no purpose, a woman, who was washing, very kindly left her tub, wiped the soapsuds from her elbows with her apron, and undertook to direct me. She accompanied me a short distance, then pointing to a steep flight of wooden steps, rather resembling the broad ladder of a granary than the entrance of a house,—there, at the top of these steps, she said, was the office. I ascended accordingly, and arrived at a narrow passage with a thin deal partition on either side ; at the extremity of which were two very small rooms, one to the right, the other to the left. As I saw nobody, I inflicted a smart rap with my switch on the partition, at the same time entered one of the tiny rooms, where, mounted on a high stool, sat a nimble little man, according to appearance a lawyer,—that is to say, he was busily writing in fair,

round characters, on a skin of parchment. I asked him, where was the coach-office? upon which he immediately accompanied me into the opposite little room, and responded to the vocation of book-keeper. I could not help being prepossessed at first sight in favour of one who thus, though of small stature, worked as it were in double harness; that is to say, performed the duties of two professions, and who, moreover, assured me, on the part of the proprietors of the Lake Tourist, of the first chance of a seat in the morning.

In the morning, arrived punctually at the point of rendezvous, it was with a feeling of disappointment I observed, so soon as the coach made its appearance, that she was what sailors call extremely "ill found:" whether the wheels were of different colours no matter, at all events she was crazy-looking, unsteady, and badly appointed altogether. The elderly personage, who had not proceeded to Whitehaven for nothing, now, with a sleek, smiling face, sat triumphantly on the box by the side of the coachman. As the outside places were said to be occupied, I immediately paid inside fare, the which I had no sooner done, than I was provided forthwith with a seat on the roof, and soon afterwards the coach started with a jerk, and jumbled us all into our places.

Whether or not the Lake Tourist be supposed to interfere with private interests in the town of Keswick I cannot say, but if one were to judge from the neglect shown to the passengers on their arrival, she enjoyed not much popularity. Perhaps, being the day of the regatta on Lake Windermere, the people in the inn were in an unusual bustle, and ran

against each other merely in the way of business ; at all events, we were ushered into an untidy room : the display of cold meats was inferior, and the waiter neither attentive nor civil.

Out of doors the cargo of the coach was being refitted under the direction of several persons, who, with much squabbling, seemed only unanimous in one point, namely, to place upon her as much as she was able to carry. Although heavily laden before, much additional luggage was now booked for Ambleside and Kendal, till the figure of the Lake Tourist was completely hidden by packages that overhung the sides,—after the manner of strawberry-pottles, to be seen in the summer, on the women's backs between Brentford and Covent Garden. Some of the passengers remonstrated, and said we should assuredly break down ; and one little near-sighted man, after busily walking round and round, not only discovered with his eye-glass a serious defect in one of the wheels, but ascertained clearly, to everybody's dissatisfaction, that we had already travelled, nobody knew exactly how far, without one of our linchpins. A rusty nail, immediately produced as a substitute, was the only redress offered for the latter grievance ; and as the proper authorities were not present, it appeared to be the best possible course to allow people's mis-directed fancies to be jumbled together, in the hope that common sense and the feeling of self-preservation might find their level, and finally rise to the surface ; for every passenger alike had a neck to be broken : the coachman was a civil well-meaning person, and one huge fat man in particular, now about to take his seat on the coach, exerting himself

for the general good, actually worked like a dray-horse.

The Lake Tourist had proceeded but a little way from the town of Keswick, when, at the foot of the first hill, it was found absolutely necessary that, previous to being dragged up, every one of the passengers should get down; this measure caused a vast deal of grumbling, nevertheless the difficulty, when, after toiling to the top, we had resumed our seats, vanished altogether in contrast with the disagreeable variety of going down,—even with a dragged hind wheel the cattle were barely strong enough to support the weight behind them, and whenever the pace for a moment exceeded that of a walk, the vehicle rocked and rolled to such a degree that all the pleasure of looking at the prospect was lost in the reasonable expectation of a catastrophe.

The coachman, notwithstanding all disadvantages, contrived to make the very best of his means and equipment; entirely by dint of steadiness and good driving he brought his charge safe within six miles of Ambleside. Then came the time of reckoning. Proceeding at a gentle pace down a long steep hill, with a dragged off hind wheel, the coach having overpowered the horses for a few seconds, began to rock, laying an awful stress on the springs, first lounging on one side, and then on the other, till the defective hind wheel, the near one, being the weakest point, gave way all at once, every spoke breaking close to the nave, and over fell the Lake Tourist, striking the near edge of the top of the carriage within about four feet of the bottom of a seven-foot stone wall.

The crash, the scream of the women, and the

scramble of people among tumbling packages, were all simultaneous; for my own part, I was thrown, and partly helped myself, on the top of the afore-said stone wall, where I might have sat comfortably enough on a thick bed of moss, had not many individuals required assistance. Several lay under the coach, which rested most perilously above them; these must all have been crushed, had not the coachman in falling kept hold on the reins, and quickly recovered his feet; fortunately not a horse placed a foot forward, although the women inside, who were not in the least hurt, screamed loud enough to scare a regiment of cavalry.

Assistance was first rendered to the people under the coach, who were not long crawling out; then the women were pulled out of the inside, and, when all were collected, only one serious case appeared among the whole. The stout elderly man, in return for the pains he had taken to procure a seat on the box, now in falling therefrom, had dislocated his ankle, and received other injuries; the box seat, therefore, was fairly to be viewed by the rest of the party as one of those worthless objects of misplaced energy, the which not to have obtained, many an individual, now and then, in the course of life, lives to rejoice.

Never did lovers of the picturesque profit less by the beauties of the country around them than the present group, every one's attention being entirely confined to a few hot, dusty yards of the turnpike road; some assisted in carrying the maimed man to an adjoining bank, others dipped moss and ferns in a rivulet, and applied a cooling embrocation to the limb, while one of the women, merely because

she herself was frightened, still continued to scream.

But a material point of consideration was,—how to prosecute the journey; and it was proposed, as the most feasible method, to obtain forthwith, if possible, some country conveyance, instead of waiting for relief from Ambleside, whence probably every hired carriage had departed for the regatta;—but to this, and all other similar proposals, the fat hard-working man, who got on the coach at Keswick, invariably dissented, always throwing cold water on every possible suggestion;—nothing at all seemed to suit his fancy; neither did it please him that carriages should be hired of a neighbouring farmer, nor that they should be procured at Ambleside; his own proposition was, to take in charge himself, the wounded man, and the luggage, while every other individual set forward to walk to Ambleside.

As the passengers grew impatient, the fat man became surly; the latter, notwithstanding, though resolute, was out-voted by a heavy majority, and the coachman dispatched on one of the horses bare-backed to Ambleside, to procure conveyance. A long time this messenger's return was so anxiously expected, that even before a reasonable period had elapsed apprehensions were expressed that he might never come back, and finally everybody turned to account their moments of leisure by grumbling and complaining one way or other. All agreed that the proprietors were highly to blame; and as for the worn-out old coach—as she lay against the wall, her ailments exposed in every part, one pointed at a fracture, another a splicing, and a third vented his

spleen on the rusty nail, or linchpin, in terms particularly aggravating and grating to the nerves of the fat man, who, right or wrong, stoutly defended the cause of the proprietors. Overpowered by numbers, and finding he had the worst of the argument, he talked louder and louder, puffed and blowed like a whale, and contradicted everybody one after another;—on looking at him the only wonder was, how he could have managed to fall to the ground without absolutely bursting in twain; as it was, his coat only had suffered, which garment had split through the middle from the top to the bottom of the back,—merely from the force of expansion.

I was not surprised that this person was earnest in the cause he was pleading, seeing that, an inhabitant of the neighbourhood, he zealously espoused local interests, and stood vexed by a throng of opponents, one man against their united attacks,—roaring defiance, as it were, against them all, his back towards the fallen coach, like Achilles by the body of his Patroclus; but the effect was truly dramatic, when, at last, irritated beyond all manner of bearing, in answer to somebody who threw him off his guard, he exclaimed at the top of his lungs, that he himself was a coach proprietor.

Had the poor man by the side of the road observed the sensation created by this avowal, he would no doubt have forgotten in a moment all his bruises;—one would really have imagined people wished to ride into Ambleside on the huge man's shoulders, so eagerly now did they press round him for explanation. On his part, having judiciously intended to waive the privileges of office, at the same time to defend the cause of the firm, the ac-

knowledgment in an unwary moment no sooner escaped his lips, than apparently he could have bitten off his own tongue, and everybody's nose into the bargain;—seriously mobbed by all, and a big sulky fellow into the bargain, nobody can exactly say how the matter might have ended, had not the coachman now most opportunely appeared, bringing with him a cavalcade of three or four carriages of different descriptions.

One of these was an open landau, and the rest tub-gigs (as they are called in Cumberland); a vehicle, in point of fact, very like a tub set upon wheels, rather after the fashion of the Irish jingle or jaunting car, and particularly adapted to a hilly country, the equilibrium, although on two wheels, being capable of the nicest adjustment. The lame man was now placed at full length along one of the seats of the landau, and the rest of the passengers disposed themselves in uncouth attitudes, together with the luggage, fortuitously assorted, in the tub-gigs. Every one was satisfied with the best place he could get, and presently, all being ready, the landau was driven in front, and the other carriages forming line, and keeping close in the rear, all arrived together in about an hour at the town of Ambleside.

The day was exceedingly fine, when, towards evening, a motley crew presented themselves before the fashionables of the regatta.

A characteristic identity at all times pervades the appearance of a set of stage-coach passengers, people actuated, for the present moment at least, by one common object, let their different individual pursuits be never so much at variance; and most

particularly now, among those who had recently suffered together a common calamity, humanity suggested a degree of sympathy that even more strikingly involved the figures in the group within the pale of fraternity; nor could there be any greater contrast in nature for the time being, than between those who composed this procession and the gay personages assembled at Ambleside to enjoy the festival.

As the ponderous maimed stranger was carried up the broad, well-cleaned entrance steps of the "Salutation Inn," I observed a jovial party in one of the rooms on the ground floor, dressed in the over-wrought costume of sailors, and with studied negligence; these, as they carelessly sipped their wine, merely drew their chairs and bottle closer to the window, the better to scrutinize the unfortunate party,—meanwhile I saw descending from above glances of kind pity that beamed from two pair of lovely female eyes in an upper story.

It was growing late, and the journey to Kendal still to be performed; as the sympathy of the public was now enlisted on the part of the passengers, they, as is the way of the world, grew obstreperous accordingly, nay, even inconsiderately fastidious as to the vehicles proposed to be furnished at the expense of the coach proprietors—whence arose additional cause of delay.

The fat fellow's troubles were by no means at an end; not only did the whole labour of the arrangements fall to his share, involving him in continual disputation with the passengers, but of the townspeople, both friends and foes were putting him to torture,—the former by ill-timed inquiries relating

to the accident, and the latter by gibes and taunts as they chuckled at his misfortune ;—he was, as it were, in a hornet's nest, stung on all sides by wilful buzzing assailants. In good truth he retorted manfully, and shuffled, and bounced, and perspired, moreover having a gruff voice, neither being over choice in his mode of expression, sometimes with considerable effect ; still he was only one against a host, and stood at fearful odds till he found timely relief by half-a-dozen of his friends picking a quarrel among themselves. The subject was the concerns of the establishment ;—one horsed the coach, and another coached the horses ; one worked this end of the line, and the other the opposite ; in short, the ball of responsibility was bandied from this man to that man, in a manner to make it clearly appear that neither was responsible, and prove beyond all manner of doubt that the lives of the passengers had been entrusted to nobody at all. Thus three hours having elapsed before the vehicles that were to convey the party were ready to depart, the maimed man was consigned to the care of a surgeon at Ambleside, and the cavalcade of tub-gigs proceeded on their way escorted along the streets by a crowd of spectators. The fat proprietor himself, together with one other passenger, brought up the rear in one of these said carriages, which contained besides an inconvenient proportion of luggage, indisputable symbols of his profession, such as collars, harness, splinter-bars, &c.

The adventures of the morning might now be called at an end, and thus was brought to a conclusion a premeditated party of pleasure :—happy indeed were all those interested, when, at ten o'clock

at night, after all their mishaps they found comfortable quarters at the inn at Kendal.

* * * *

Between Kendal and Penrith, about a mile east of the turnpike road, on the top of the hill called Shap Fells, is a mineral spring, contiguous to which the Earl of Lonsdale, on whose estate it rises, not many years since erected a spacious mansion, with stabling, &c., to serve as an inn. The inhabitants of the neighbourhood were long accustomed to resort to the wells to drink the waters, and enjoy country society at the old original hotel, very far inferior to the present edifice; yet the partial patronage hitherto afforded the new establishment has not been sufficient to bring it into general notice. Its site is on a heathery moor, without a village or other buildings to mark the spot; neither is there, short as the distance is, any direct communication with the public road.

Those aware of localities, if travelling by public conveyances, usually descend from their vehicle on the exact meridian of latitude, deposit their trunk or valise under a bush of heather, and then, proceeding on foot to the hotel, dispatch a porter for their property. It would seem there are no thieves at Shap, for not only is the above proceeding of ordinary practice in the present instance, but also with regard to parcels dispatched from the hotel. These are always placed out of doors in a spot agreed upon between the landlord and the carrier, from whence they are removed by the latter, who passes with his vehicle in the middle of the night.

Strangers, whose knowledge of their whereabouts is not so perfect, leave, of necessity, their arrange-

ments to coachmen and guards, in return for which act of confidence, instead of being deposited within a mile of the Wells as aforesaid, it usually happens that they are whirled on four miles farther, merely to the end, literally speaking, that they may be carried back.

The unwary traveller, on his way from Kendal to Shap Wells, receives the first notice of this *ruse de guerre*, or mistake, or what not, by the sudden halt of the coach at the door of the public-house;—here, before he has time to look about him, his luggage is thrown on the ground, when, everything lying in the middle of the road,—the guard blows his horn,—the horses spring forward,—and he is left alone. At this particular crisis, like a spider in his web, out steps the landlord from his bar, and with a smiling countenance, propounds in the way of terms to the stranger,—a neat post-chaise and able horses; which latter it usually requires an hour to get ready, whether it be necessary to catch them at grass, or bring them in from the hay-field.

It is in contemplation, it is said, to erect a suitable porter's lodge adjoining the turnpike-road, whereby the said difficulties of access to the wells will be entirely obviated.

On arriving at the hotel I found a comfortable, well-built house, the apartments exceedingly good, and the terms so unreasonably moderate, that one would have imagined the landlord had been screwed down at least one peg below the point of possibility.

Arrangements, it appeared, were made for receiving different sets of company (I believe three): at all events, a schism had some time since arisen be-

tween the two principal parties with regard to the dinner-hour; on which point issue was joined, and those who formed one set then split into two, each maintaining their own objects, and dining at their own hour.

For one set, breakfast was provided at nine, dinner at half-past one, tea at six, and supper at nine: for the other, the time of breakfast was *ad libitum*, that of dinner four, and tea eight. Conceiving the latter arrangement better suited to rambling excursions on the hills than the former, whereby the day is absolutely frittered away in attending to eating appointments, and time subdivided into so many small portions, that each becomes of little value,—I decided on joining the latter coterie, but was then informed that, on the last division on the question, when “the half-past one gentry” carried the day, “the four o’clock party” had retired from the field. Though I was at full liberty to support the privileges of the latter, had I chosen to do so, as I must in that case have been contented to dine alone, inasmuch as all those now at the hotel belonged to the victorious set,—without hesitation I joined the majority, who, at that moment, were about to sit down to supper.

Temperance at this meal was the order of the day; indeed, neither at dinner nor supper did I see a glass of wine drunk during two days I lived in the house. The party consisted chiefly of Cumberland yeomen, their wives and daughters: of these, some of the ladies drank tumblers of milk, others swilled water-gruel, nor, with one or two exceptions, was any stronger beverage introduced. Ginger-beer, I may observe, was now and then called for,

and a better panegyric as to its quality cannot be pronounced, than a single matter of fact, in the means adopted by a gentleman who sat near me to restrain its effervescence. He thrust his forefinger up to the first joint into the neck of the bottle: even then it continued to hiss, and though, as he drank, he sternly fixed his eyes in the direction of the sound, the air was so obstreperous, that it was with extreme difficulty he secured the remainder of his liquor.

It would seem that the spare time of the visitors is entirely taken up, either in drinking the waters, or in attending to their effects, for as to the resources of dissipation or amusement at the hotel, all may be comprised in a small jingling pianoforte and a bagatelle-board in the drawing-room, and implements for the game of "*les Graces*" on the lawn,—considerable energies are, however, imparted by the medicinal properties of the spring, which, besides being highly sulphuretted, contains saline particles in abundance. The bath-house consists of two bathing-rooms, one for gentlemen, and another for ladies; in each bathing-room are two baths, the one divided from the other by a flannel curtain; the water being supplied to the drinkers in the front apartment from the same cocks that fill the baths.

The efficacy of the water is aided in a great degree by the elevated site of the habitation; whence, towards every point of the horizon, is extended, as far as the eye can reach, an unbroken prospect of mountain and moor. With all the advantages of a country inn, possessing ample accommodation for

families in the house, and for horses and carriages in the outbuildings, provided the object of the party be to drink the waters, enjoy uninterruptedly the pure, clear air of the hills, and live altogether in private apartments, every facility towards comfort that can possibly be imagined may be found at this hotel.

CHAPTER XXVII.

WHITEHAVEN.

A rough Flight of Steps—A Rookery of Children—Coal Staiths—Inclined Plane—Descent of laden Waggons—Air Cylinders applied in aid of the Brake Wheel—Ravenshill—Shaft and Tunnel to the Mouth of the Saltham Coal-pit on the level of the Sea—Action of a counterpoising Weight on an Inclined Plane, in aid of the Raising Engine—Signals—Thundering Sounds—Descent—Female Drivers—Waggons on their Route to the Shaft—A Gentleman with a Black Face—Mild Temperature applicable to Medicinal Purposes—Colliers haggling Coal—Bull-dog spirit of Englishmen—The Safety Lamp—A hazardous Experiment—Recent improvement of the Extinguisher—George Stephenson, the original Inventor of the Lamp—Incident leading to the Discovery—A Steam-engine 150 fathoms under ground—The forty-stall Stable—Condition of Horses—A Subject for Canova—Ascent—Sensations—Use of Yellow Soap—The Patent Slip—The Harbour—Collision of Interests—Diving Bell.

EXCEPTING at South Shields, I think I never ascended a more uncouth flight of stone steps than those which lead from the docks at Whitehaven to the high land on the southern extremity of the town. Not only is the inclined plane of considerable declination, and the steps unusually deep, but many of the latter are so much worn towards the outer part as to be absolutely perilous;—at all events, whether considered impassable or otherwise, some persons, to whom I spoke on the subject, said that, though inhabitants of the town all their lives, they had never been either up or down. Mine was a double, if not

a triple object in making the ascent: in the first place, I wished to explore the high ground on the top, the principal abode of the colliers, and adjacent to which is the point of delivery of the coal dug south of the town; next, to trace the artificial line of transport of the coal from the pit to the town; and lastly, I was on my way to the Saltham pit, to descend which I had obtained permission of the proprietors. On both sides, all the way up, on the right and on the left, are built small houses for the colliers, where, as is usually the case, in proportion to the size of the dwelling, inversely is the stock of little children: these, at all hours, sit, ten or a dozen at a time, like unfledged rooks, on perilous crags of stone, and crawl backwards and forwards from the little alleys which diverge at right angles from the landing-places.

I observed some with red heads, others white heads, but all black faces, alike carelessly clambering up and down, and playing on the verge of precipices awful to behold. One little creature particularly, hardly able to walk, nevertheless made his way up, without any assistance, and alone—a little boy, covered by one single, very short petticoat, and it was curious to observe how cautiously he crawled on all fours, and as he travelled on the back part of his hands and his feet, carried his hind quarters high up in the air. “Do your children never tumble down these steps, and if they do, where in goodness do they stop?” said I to a poor woman. “O yes, Sir, very frequently,” said she, “but they hardly ever hurt themselves, somebody always stops them.” How special is the protection of Providence towards helpless infants; here, a step one way

or the other carries a child to its cradle, or its grave !

Above these steps, a few hundred yards distant, are the staiths, from which the coal is delivered by spouts into the holds of the vessels below. As the level is full fifty feet above the water, it falls thundering downwards, like a cataract, and with the force of a battering-ram, more violently, I think, than under any contrivance I have seen along the coast. The waggons, previous to delivery at the staiths, descend along an inclined plane of two hundred and sixty yards in length, and of remarkable declivity, especially towards the lower extremity; the distance is traversed in one minute and a half, the full waggons being made to draw up the empty ones: on some days, upwards of three hundred pass by this route, on their way to the staiths; and a collier is frequently laden from the pit in a single tide.

At the summit of the inclined plane, an admirable contrivance is resorted to, in aid of the brake wheel, than which there was formerly no other implement to counteract the force of the laden waggons on their descent: the weight of these, however, not being sufficiently compensated by the empty ones ascending at the same time, the stress on the brake was consequently very formidable; and this stress it was the object to remedy. The pistons of two large air-cylinders, connected by cranks to the axle round which the rope that sustains the descending waggons is coiled, are so constructed, that, acting immediately upon the axle, they oppose an equable force to its revolution, and retard the waggons in their progress down: nay, to such a degree, as to

stop them altogether, were it not that the man in charge has the means of regulating their force, by allowing the air to escape in any degree he thinks proper. This person is continually ready at his post, having a handle connected with the valve within his reach, as well as continual hold on the pole of the brake. The force opposed to the axle is rendered equable by the alternate motion of the pistons; as one of these ascends, the other descends, thus relieving one another; that is to say, as the piston of each air-cylinder descends, the valve opens; as it ascends, it shuts, thereby throwing the resistance upon the axle:—no sooner, therefore, is one piston *hors de combat*, than the other resumes the labour, and thus, both working alternately one after the other, the same force, neither more nor less, is in continual action.

The above operation refers to the last two hundred and sixty yards of the distance performed by the coal waggons, from the pit to the staiths in the town; the preceding half mile, in the same direction, is along a railroad, on a level, commencing from the establishment of Ravenshill, whence the waggons are drawn by horses. Ravenshill is a large coal-yard, on the verge of a cliff immediately above the sea; here the coal is deposited in large quantities, screened, &c., being brought hither from the Saltham, Croft, and Wilson pits. The communication is by a shaft of twenty-nine fathoms, which descends to the level of the sea-shore, and thence reaches, by a tunnel of about a hundred yards in length, to the mouth of the Saltham pit; which latter excavation extends to a considerable distance under the bed of the ocean.

A boy and a horse are employed to remove the corves, or baskets of coal, from the pit's mouth; the horse, without blinkers, or other harness than his traces, performs his office with the promptitude of a reasoning creature; knows when and where to turn, and constantly working within confined limits, makes use of his own eyes, and obeys the most trifling signal. The man stationed at the mouth of the pit seizes each corve, as it arrives at the top, with an iron hook, pulls it towards him, clear of the mouth of the shaft, then lowers it by the tackle upon a low-wheeled truck, of which five or six are linked together. These the old horse drags by his traces, or pushes, by his breast, before him, as the case may be, along the railroad. So soon as each load is ready, he instinctively proceeds on his march: arrived at the mouth of the aforesaid tunnel, fifty or sixty yards distant, the level being too low to allow a person to ride on his back, he lays back his ears, and leads the way undauntedly, followed by the boy his driver, into utter darkness.

The shaft of the Saltham coal-pit is quite close to the sea—absolutely on the shingle, and one hundred and forty fathoms, or eight hundred and forty feet deep; which depth, though not so great by one-half as that of the Monk Wearmouth pit, lately completed at Sunderland, is, nevertheless, equal to twice the height of St. Paul's Cathedral. At the Saltham pit the baskets are drawn up and let down by flat rope, the same as in other places is now universally adopted; each bucket has its rope, both being wound opposite ways on the same axle. On the same axle is also a third rope, attached to a small truck, laden with pigs of iron, as a counterpoise, in order to re-

lieve the raising engine at the first lift. The truck ascends and descends an inclined plane on rails, and its rope being just half the length of the shaft, so soon as the whole is expended, the truck being then at the bottom of the plane, and the axle revolving in the same direction, the latter gathers the rope the opposite way, and thus the truck is drawn up again.

Having arrived at the premises of the Saltham pit, I was furnished with a collier's jacket and cap, and being further provided with a safety-lamp, and accompanied by a guide, we both made our appearance at the mouth of the shaft, from whence the guide hailed the men who were working below. The colliers underground communicate intelligence and signals with the upper regions in a very peculiar tone of voice; indeed, on both sides, the words uttered are quite unintelligible, while hollow thundering noises, engendered by the echo, strike in wandering peals upon the ear. In compliance with these sepulchral sounds, an empty basket was accordingly sent up, into which we both stepped, and were immediately lowered down. The motion felt exceedingly slow; the size of the basket, strength of the chain, breadth of the rope, and all the apparatus, impressed the mind with an idea of perfect safety; the water dripped plentifully from the boarded sides all the way to the bottom. Half-way we met the other basket, in which people were ascending; our pace was here slackened, and a few compliments passed, after which we began to spin and swing a little, but soon descended as steady as before. We were no sooner grounded, than my companion, knowing his way better, and whose eyes habitu

ally served him in the dark, tripped away in a moment down a craggy, uneven descent, leading from the bottom of the shaft to the interior of the pit. A few lamps faintly twinkled at the bottom, but the intervening space towards the light was black as night; in fact, beyond the distance of a yard, I could see nothing at all;—nevertheless I was clamorously urged to follow the leader without delay, one desiring me to put a foot here, and another there, all in the same breath; while I, perhaps obstinately, stood still waiting to distinguish an object to tread upon. All this time I held in my hand a safety-lamp, which afforded a glimmering so feeble, as to be, during these first moments of darkness, quite useless. This simple contrivance, with which some people are acquainted, and others not, is merely a small, circular, ordinary lamp, screwed into a cylindrical covering of gauze wire, about ten inches long and three in diameter. In the present instance, as in the course of life it not unfrequently happens, I might have paid dearly for the exercise of self-will in defiance of wholesome advice, for I did not then reflect upon the danger, while remaining in the shaft, of fragments of coal falling from the top.

At last I groped my way down about ten feet, by an extremely awkward path; from whence, together with the guide, each carrying a lamp, we now commenced our subterraneous walk. The level was high enough to allow a person to stand upright, but the path uniformly ankle-deep in black mud; the temperature exceedingly warm. The collier's thick jackets were highly oppressive. As we proceeded, we were occasionally obliged to halt, and

stand with our backs closely pressed against the side-wall, in order to allow the trains of coal-waggons to pass by on their way to the shaft.

Of these waggons, or trucks, each bearing a single large basket, or corve, one horse draws a dozen, linked together, along the railroad that extends through the middle of the track. The driver of these trains was generally a boy,—sometimes a girl; of the latter sex thus employed, I met three or four during the morning, dressed so nearly in male attire, that, by the uncertain light, as they passed by, it was impossible to say which was which. Owing to the narrow space in the level, there was but barely room on either side, as I have already hinted, for the waggons to go by; not sufficient to allow the driver to keep by the side of his or her waggon, and at the same time pass a foot-passenger going in an opposite direction. Boys and girls both adopted a similar manœuvre on these occasions; springing nimbly up in rear of the horse, on the near side, the right shoulder and hip were supported by the animal's hind quarters; the right foot then rested on the bed of the carriage, close to his hocks, while the left was placed upon the chain trace. In the meantime the horse proceeded with a docility and steadiness equally to be depended upon in darkness as in light.

I had not walked far, when my conductor led me into a small cavity, or hole in the wall, a sort of black chamber, in which there was a bench as well as a small table. Here he requested me to stay a few minutes, while he went to fetch another person, who would lead me through the remainder of the pit. After waiting about five minutes, he returned

again, and formally presented me to the new guide. "Now, Sir," said he, very politely, "you will go along with this gentleman." Though no term in England can be more definite, according to its real meaning, than that of gentleman, and at the same time more vague taken in its common acceptation, yet, somehow or other, in ordinary life one is not used to meet a gentleman with a black face: and I confess, that—though I hope not prone to pay too much credence to colour, or overlook, under disadvantageous appearances, latent merit—I was at the first moment a little staggered by the appellation;—the countenance of one gentleman was no less sable than that of t'other gentleman, yet both together were as black as the visage of a third gentleman whose name need not now be more particularly mentioned. The skin of every man in a coal-pit, by a very simple process, soon attains the same hue, but since no discoloration of the moral qualities ensues thereby, neither are the gradations of rank forgotten, nor is the mutual respect with which the workmen regard those set above them at all diminished. Casting a glow-worm beam from my lamp ahead, and at the same time viewing my own collier's dress, I marched on, following my leader, repeating the lines of the poet,

"Worth makes the man, and want of it the fellow,
And all the rest is leather and prunella."

As we proceeded, my new companion was at some pains to explain to me the mode by which a free circulation of air is obtained, by opening and closing doors as occasion may require, which doors are placed at the entrance of certain passages, through which latter the current is managed as daintily as if

it were water, and an uninterrupted draft continually attracted towards the open shaft. I was unable to comprehend the process in detail, as it depended entirely on topographical points, the which I had neither leisure to consider, nor light to distinguish. A continual stream of air is nevertheless conducted through these subterraneous labyrinths, with identically the same precaution as if it were a river. I was heated to a considerable degree from the exertion of walking over uncertain ground, nearly in darkness, as well as by the covering of thick horse-cloth that I wore; I nevertheless felt the air upon my face mild and balmy; so much so, that it really occurred to me that the temperature of a deep coal-pit might be applied to medicinal purposes, as being, of all others, to an invalid, the most gentle and equable.

Although, previous to making the descent, I had anticipated very extensive subterraneous space, I had not calculated upon the length of the level, or streets, through which we passed. As we turned about continually, and as it was so dark that it was necessary to pay uninterrupted attention to the path, I cannot pretend to give, otherwise than at random, an account of distance from my own observation; but I feel very sure we had not proceeded underground less than two miles, when we came to a party of men at work, at the spot whence the first waggons, encountered on the way, were dispatched. As to the direction—I have a partial recollection that in one instance we went, as I was told, a thousand yards in a straight line under the bed of the sea; and then again four hundred yards more, point blank towards another point.

Here was a scene calculated at once to display in glowing colours the energy of the English labourer, and I stood for some seconds really in heartfelt admiration, viewing the unconquerable bull-dog spirit of our countrymen. Deep in the bowels of the earth, half a dozen human beings, covered with coal-dust and streaming with perspiration,—objects, perhaps, of the indolent laggard's pity, enacted the part of heroes and Christians,—fathers and husbands above ground,—here strained their sinews within a heated vault with reckless and undaunted fortitude. Some “hagged” the coal, breaking it in fragments with pickaxes from the rock; others shovelled the coal so broken into hand-trucks, which latter were taken in turn, and pushed by the breast to the verge of a high bank above the level by which we were approaching, where the waggons stood ready underneath to receive the load and convey it to the shaft. These men, almost in a state of nudity, had no other covering than from the waist half-way down the thigh.

The temperature now being very warm, my conductor remarked that probably the air was impregnated with hydrogen gas; and immediately, as if solely for my edification, he unscrewed his safety-lamp, taking it out of its wire case: a bluish haze rested upon the flame, which, he said, was indicative of the existence of the fluid. I was much surprised at this experiment, which I could readily have dispensed with altogether, taking his word instead,—in fact, it is almost universally owing to confidence or hardihood, as well as carelessness on the part of the workmen, that coal-pit explosions occasionally take place. The safety-lamp, I

believe, if properly attended to, has never been known to fail, for it is not only a perfect safeguard, but admonitory in its operation; when burning in a tainted atmosphere, the particles of air which enter by the divisions of the wire ignite gradually, so as first to brighten the flame, and then illuminate the whole space within: finally, the heat becomes so great, that, provided the above phenomenon be not regarded, the wire melts, and then, but not before, explosion ensues. By a recent improvement, invented by an individual of Sunderland, an extinguisher has been added, which being suspended within the lamp by a wire, the latter subjected to contact with the ignited fluid produced, as above related, no sooner melts than it drops the extinguisher. Many people assert that, notwithstanding the whole credit of the invention of the safety-lamp rests with Sir Humphry Davy, a great part is due to the well-known engineer George Stephenson, by whom a modification of the principle was first adopted in practice, and with whom previous communication was held on the subject by the patentee. It is further said, as to the means which led to the discovery, that the idea was originally conceived by the said individual, who, sitting after dinner, and accidentally holding the prongs of a silver fork in a candle, observed the impediment created to the progress of the flame, and drew his inference accordingly.

We were at this time at a spot ten fathoms below the level of the shaft, whence a stationary steam-engine of eight-horse power is employed to draw the waggons up an inclined plane; I found it inconvenient to approach this engine, owing to the exces-

sive heat. Near this part of the pit we came to a place where, about two months before, a considerable portion of the roof had fallen in, owing to a large chamber having been formed, leaving a wide space of the roof without support. The *avalanche* fortunately was attended with no calamity, though large fragments still lay in heaps, never having been removed since the accident.

Hence we advanced a thousand yards up an inclined plane towards the stable, gaining thereby a considerable elevation; here the horses of the pit, forty-one in number, are kept, some without seeing the light of the sun for years together. We were now very near the shaft, and as to the level, exactly midway between the bottom and the top,—the point where the baskets meet; here is an opening towards the shaft, consequently only half-way, or seventy fathoms, remained to be performed hence on our return to the realms of day. The accommodations for the cattle resembled those of a farmer's cart-horse stable in the country, but on a larger scale, there being not less than forty stalls, or rather standings for forty horses in a line, besides two large boxes. Although the horses were most of them at work, and not above a dozen present, the place was as hot as a pinery; certainly overheated and ill ventilated. According to common report, horses in a coal-pit universally keep themselves in high condition, and as I was curious on this point, I paid particular attention to these. Their skins were no doubt sleek, and they might be said to coat well, they were also apparently in good flesh; an effect unquestionably to be attributed to the equable temperature of the atmosphere; but nevertheless,

the firm crest and tone of muscle which indicate true condition were altogether wanting. One old horse, sleek and fat, but his crest, and his flesh generally, flaccid, as if he had been in a straw yard, was pointed out to me, that for eighteen successive years had worked incessantly in these regions. All those I met at their work sweated a great deal, being decidedly what is termed "foggy," and, I have no doubt, after their labour, "dried ill." No straw is supplied for litter; the consequence is that few of the horses ever lie down. It was related to me that those which, after remaining a long time underground, are brought to day-light, are literally, at first, to all intents and purposes, stone blind; if not very carefully attended to, they run against every object in their way, nor do they recover their eyesight till, by living in a darkened stable for a few days, they become inured by degrees to the light.

After passing nearly two hours underground, where, as I was told, upwards of a hundred men are constantly employed, we prepared to ascend and revisit the light: to this end we proceeded about fifty yards from the abode of the horses, to the mouth of the black-looking abyss, by which the baskets or corves were continually going up and down. The usual vociferations or signals were no sooner made than the broad flat ropes began to move rapidly in opposite directions, and in a few seconds, as the empty corve descended from above, the laden one appeared advancing rapidly from below, bearing upwards a small band of working colliers. "How many of you are there?" inquired my conductor. "Five" was the reply,—upon which

the corves crossed each other on their way, and a group shot a-head, affording, as the light of their safety-lamps shone faintly upon their countenances, a subject worthy of Canova. The feet of the upper man, who stood high above the rest, if not supported on his neighbour's shoulders, were thereabouts, and the attitudes of all underneath, crouching together, and crowded into the corve, were particularly striking and characteristic; they disappeared instantly, and the empty corve had no sooner arrived at the bottom, than it was immediately sent up again to receive us. It was not quite so easy a matter to get in here as at the top of the shaft. As the corve thus midway below is beyond the reach of the eyes of those who govern the apparatus above, a few feet of rope more or less, I presume, are not considered important;—at all events, according to the oscillations of the axle above, so the corve continued to rise and fall, and finally rested full six feet below us; so that it became indispensable, holding by the chain, to swing ourselves in, the which was no sooner done than a third man having joined us, and all being ready, the signal, like the moaning of a heifer, was immediately given, and we darted upwards. I was really delighted by the extreme swiftness of our ascent, by a motion as it were generated in starts and bounds, while streaming lines appeared to descend along the wet planks at the sides of the shaft with inconceivable rapidity. The sensation was that of leaping into open space above, under the agency of an incalculable power, such as is presented to the mind by those illusive dreams or visions wherein the sleeping frame is borne on wings along interminable space, or trans-

ported in hurried thought through the air among the tops of lofty mountains.

At all events, one may reasonably claim a right to be imaginative on such an occasion ; being quite sure, when blessed again by the light of the sun, to be brought to sober reflection ; one momentary glance at a looking-glass is then quite sufficient at least to engage the mind on a question of identity. Ten minutes I was busily occupied within a small adjacent cottage, in the endeavour, by the assistance of yellow soap and hard scrubbing, to restore my face to its original colour, and even after all I could possibly do, I carried with me back to my inn, not only my own inward recollections of what I had seen, but outward visible tokens of the profession of the grave-looking gentleman whose cap and jacket I now with thanks restored to their owner.

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On viewing the stupendous mechanical purchase called the "Patent Slip," it appears remarkable at first sight, that notwithstanding a patent has been obtained for the contrivance, it consists, after all, merely of the simple application of other powers, which latter have long since been in ordinary use :—namely, the windlass, the inclined plane, and the railway ; in fact, the patent slip is nothing more than a gigantic windlass, by which ships are drawn up an inclined plane, upon iron rails, out of the water. Forty or fifty men, as the case may be, work at the said windlass, the vessel being thereby raised as high as is expedient ; after having undergone her repairs, she is then lowered back again, and set afloat by the same process.

The windlass is double ; I mean, there are handles

on both sides; the latter move vertically, and when manned together, fifty men are enabled to work without inconvenience. Thus a power is obtained sufficient to raise a vessel of five hundred tons' register, and so on in proportion, the actual weight of the unladen vessel being estimated nearly the same as her register tonnage. The machinery consists of multiplying wheels and pinions, as follows:—viz., wheels and pinions, 6; duplicate, 1; broad plane pinion, 1; total, 8. The windlass catches its first grip by a set of pins, about a foot each pin in length, with which the said broad plane pinion is furnished instead of cogs. As the pinion revolves, the pins act as levers, one after another, entering the links of the chain made fast to the ship; the length of the pins and the intervening space between each being adjusted so that as one pin frees itself, another enters the next link. It is singular that the fashion of the chain here used for the purpose of raising five hundred tons is precisely the same as that of the fusee of a watch: it is, however, a double chain, the connecting rivet of each link forming the point of resistance. The aforesaid chain hauls upon a series of circular iron rods of two inches diameter, strongly riveted together.

The inclined plane is in length one hundred and eighty feet, extending from the windlass above, a considerable distance into the sea; the rise three quarters of an inch in a foot.

The iron rails are quadruple, one pair ten or twelve feet asunder; the inner pair about eighteen inches apart: these latter are furnished with a row of catches, at intervals of about a couple of inches, for the purpose of receiving the point of a short

iron dragstaff, which follows the vessel while moving up the plane, in the same manner, and for the same purpose, that a similar implement is appended to a carriage ascending a hill. The vessel, previous to being dragged out of the water, is set upon a frame consisting of enormous longitudinal and transverse beams, and which frame moves upon castors. In order to lay the vessel upon the frame, the latter being under water at the lower extremity of the inclined plane, the former is floated above it, and as the tide ebbs, allowed to rest thereupon.

The operation of raising a vessel from the harbour to the slip, as may be supposed, is not rapid; not faster, as I was informed, even when the men work hard, than at the rate of one foot in four minutes.

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The harbour of Whitehaven is a semilunar bay, encompassed by high land all round;—within, no river discharges itself into the sea. The dense cluster of piers and jetties seems to indicate the confined scale upon which they were originally raised; a plan by far too confined for the present increased state of shipping and commerce: from first to last, abundance of material has been expended in various angles and intersections apparently void of preconcerted design, alterations and additions made and appended at different periods, and gradually, according to the necessity for augmentation.

About a dozen years since, partly with a view to remedy these defects, an outer pier was constructed, which, extending with an ample sweep from the southern horn of the bay, seems to invite another pier similar to itself from the northern horn, whereby, according to the plan pointed out by the natural

position of the cliffs, a large extent of harbour space might be contained between both.

Nevertheless, a great work, now two or three years under progress, has been determined on a different plan. A massive pier has been erected, dividing the aforesaid semi-lunar space into two unequal parts; that is to say, excluding more than two-thirds of the northern extremity. The remainder is thus rendered still more confined than it was before, and in the meantime, owing to a bar lately risen at the mouth of the harbour, the approach of ships more difficult than ever. In conformity to the present design, the William Pitt Coal-pit preserves its independence on the outside of the harbour; which overgrown neighbouring proprietorship is, as it appears, at direct variance with other local interests. In whatever degree influence may have been exerted over the plan of proceedings, two parties, at all events, are in severe collision; while some people even go so far as to assert that, were every tree still growing, and every ton of stone at the present moment in its native quarry, shipowners and others concerned would be better pleased than to see them where they are;—whether or not the work may answer the purpose intended is a separate consideration; of itself it is magnificent and well executed.

Two diving-bells, in constant work the whole of last summer, were also in requisition during the present year. A few months ago, as I walked along the platform raised above the new pier, the sea at the same time rising with a heavy swell, two men were below in one of these machines; four others on the platform pumped the air into the bell through a leathern hose.

After all precautions, a man in a diving-bell is certainly in a state of awful dependence upon human aid: in case of the slightest accident to the air-pump, even a single stitch of the leathern hose giving way, long before the ponderous vessel could be raised to the surface of the water, life must be extinct. The waves washed heavily against the solid foundation, while the operations were silently proceeding beneath; no sound was heard but now and then that of the air, which rushed upwards at intervals, gulping and bubbling, as if the earth underneath were bursting; or, occasionally, when the blow of the workman's hammer on the side of the bell furnished a preconcerted signal, either to raise or lower, or move the machine to one side or the other in the necessary direction. The effect produced upon the ear by this sound, which appeared as if proceeding from a spot not more than a foot distant, was very singular; while the intervening medium created little impediment to its transmission, the eye was without the means of judging distance, whence the sympathy between the sight and hearing being destroyed, all notion of relative position was entirely lost.

CHAPTER XXVIII.

P R E S T O N .

Adjacent Scenery—Communication with the Wigan Canal—Temperance Hotels—A Sanctimonious Landlord—Remnants of Evil Ways—Bibo in a Dilemma—Meeting at Bolton—Heavy opening Harangue—Speech of a reclaimed Drunkard—Mr. Auderton from Preston—Extraordinary Oration—Canal to Kendal—Sheet-iron Packet-boats—Waterproof Calico—Paradoxical Argument on the Power of Horses ; *i. e.*, the greater speed the less labour—Reversed Direction of Slant in Towing-paths—The Locks—Narrow escape of the Water-witch on passing through one of these—The Legh Arms at Newton—A moving Landscape—A Journey by the Railroad to Wigan—Proposed Railroad from Wigan to Preston—Present limited means of Public Conveyance—A Change for the worse on a journey—An Hour at Lancaster—The Assizes—Appeasement of Hunger—Departure for Slyne—Luggage and Impediments synonymous—An ancient Volunteer—A good Wheelbarrow—Hestbank Hotel—A Yorkshire Invalid—Gin *versus* the Doctor—An obedient Wife—Journey across Morecambe Sands—Guides—Fords—Fish Balks—Prejudices against the Passage—Danger to be apprehended—Approach to Ulverston—Iron Ore—Journey in a “Tub-Gig” to Whitehaven, through Broughton, Ravenglass, Gosforth, and Egremont.

THE site of the town of Preston is remarkable for rural beauty, the effect of which is more singularly striking as the stranger suddenly emerges from the smoky atmosphere of the manufactories upon the adjacent scenery : among the suburbs of the southern extremity, where ample space has been allotted to the streets and houses, many of which, of a superior description, have been erected within a few years, the eye is refreshed by handsome elevations

of bright red brick, embellished by healthy young trees ; and from hence a public walk and raised terrace form a commanding eminence. The prospect below extends over a charming valley, wherein the river Ribble meanders through a country rich in groves, pastures, and stately timber, and further ornamented by gentlemen's seats and white farm-houses, which latter are scattered among the green fields in considerable profusion. It was on a summer's evening at the approach of night that I visited this spot, when the gas-lights, one after another starting into existence, reflected an emerald lustre from the green leaves, bearing the hue of glow-worms in the shade, and so vivid, as to raise before the fancy the picture of an illuminated garden.

A steam-engine erected immediately under the descent, only a few hundred yards distant, is so concealed by trees, and the undulations of the surrounding ground, that no bad effect is thereby produced on the landscape.

The purpose of this engine is to draw coal-waggons about two hundred and fifty yards up an inclined plane, which terminates a railroad communicating, four miles and a half from the spot, with the Wigan Canal ; by which route the passage of laden boats from Preston to Manchester is effected in fourteen hours. One man at the bottom merely hooks the waggons to a link of the endless chain, which, being set in motion, draws them up two at a draft, when they are received and unhooked by another man at the top.

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Among other means adopted by the Temperance

Societies in the town of Preston to reclaim the deluded victims of habitual intoxication, recourse has been had to "Temperance Hotels;" the landlords of which, according to the plan of these establishments, are bound to afford to the traveller or visiter every usual accommodation of an inn, with the single exception of fermented liquors,—at the same time receiving remuneration in the form of a gratuity (a penny or two-pence an hour), as an equivalent for the restriction.

I had some conversation with the landlord of one of these hotels, who might well have been selected merely for the sake of his chubby, smiling, healthy countenance; nevertheless, I thought him,—well inclined as I was naturally towards his vocation,—a great deal more sanctimonious in his manners than necessary, when addressed professionally. Though formerly, as he said, a victim of intemperance, he had the fortitude to abandon altogether the use of strong liquor; evidently without detriment to his health, for his broad ruddy face, though totally void of expression, was that of a fat, stupid good-natured boy. A partial adherence to ancient forms, a remnant, as it were, of evil ways, in the usual array of bottles exhibited in the bar, existed still within the walls of the hotel; though these, instead of being filled with brandy, rum or gin, contained capillaire, lemonade, raspberry-vinegar, and other such washy compounds. Hence, according to my opinion, the reclaimed sinner is subjected to unnecessary tantalization; for it were certainly better entirely to banish the substance, than thus to be mortified by the needless parade of the

shadow. By the display of the bottles, one way or other, either in flesh or in spirit, poor Bibbo is sure to suffer; for provided he drinks not thereof, his bowels yearn for their contents; and if peradventure he boozes, then—woe to his inwards!

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The late Lord Derby's cock-pit has either been purchased or is rented by the Temperance Society for the purpose of their meetings; a change in circumstances, though perhaps not anticipated, nevertheless the more satisfactory to behold in the heart of a densely-populated manufacturing town; and it is surely pleasing to see a building now converted to this best of purposes, instead of the former brutal, unchristianlike amusement.

I had not an opportunity while remaining at Preston of attending a temperance meeting, but in a visit to the neighbouring town of Bolton I heard one or more of their principal speakers, and witnessed the proceedings of a full assembly.

The meeting alluded to was held in the Primitive Methodists' Chapel, and previously placarded during the day in all parts of the neighbourhood: a couple of hours before the time appointed a red flag was also displayed at the door. About half-past seven the audience or congregation, consisting chiefly of the poorer classes, began to assemble, and at eight o'clock the building was full to overflowing; among the company were several well-dressed women, and some quakers; which latter people, never slow to do good, are here not the least zealous in the good cause. The noise occasioned by taking seats in the pews, and opening and shutting doors, having

ceased, the business of the evening immediately commenced: the speakers addressed the meeting from under the pulpit.

First, a stout, heavy man opened the proceedings, by exhorting his hearers to temperance in a prosing harangue, wherein he treated the subject in a trite, common-place way, and spoke in a nasal tone, which conveyed to my mind a greater resemblance to the style of a field-preacher than the straight-forward address of a sensible citizen. This dull exordium lasted about a quarter of an hour; previous to resuming his seat, he gave the meeting to understand that the speaker next about to address them had been formerly a confirmed drunkard, but now, having forsworn his evil ways, was a strict proselyte to temperance.

A member of the lower classes now rose, and stated it to be his object to set forth to his hearers his own individual case, which he proceeded forthwith to paint unreservedly, and with such truth and force, that red noses soon became absolutely personified in the imagination as warnings or beacons whereby drunkards might steer and reach the shore, who, like himself in his days of abasement, were sinking in the gulf of intoxication. This person, an illiterate man, possessed humour and natural talent; he spoke with great fluency for nearly half an hour; in the course of which speech or confession, he described his services as a soldier in India, and bore testimony to the strength, courage, and hardihood of the natives, sheer water-drinkers: emphatically contrasting their constitutional vigour with that of Europeans. He then proceeded in the following strain:—"A drunkard!" said he, "why

everybody gets the upper hand on him ! A fool gets the upper hand on him ! A child gets the upper hand on him ! A wife gets the upper hand on him !” Which latter sentence especially, delivered with great *naïveté*, set many of his hearers laughing, and made a powerful impression ; neither was it averse to the present purpose thus to enliven the subject as much as possible by reasonable merriment ; all the orators, in fact, availed themselves of the *jeux d’esprit* that lay in their way.

In the end he clearly made out that, from being once an habitual sot, he had subscribed to the most rigid pledge of abstinence from all spirituous liquors whatever. To conclude, he was about to give an account of his conversion, wherein his imagination so far outstript plain matter of fact, that he became involved in a confused narrative connected with an extraordinary vision, in which he introduced no less a personage than the Devil among other *dramatis personæ* ; however, the chairman now interfered, and brought the story to an end. He called to the rostrum a celebrated partisan and orator,—“ Mr. Anderton from Preston.”

Up jumped Mr. Anderton, a little, dapper man, as lithesome as an eel, who plunged at once rhapsodically into the middle of his subject, in a speech more than an hour long, and remarkable for an energy and fluency really very uncommon ; his utterance was distinct, yet he might be said to talk in demisemiquavers, for he never for an instant stopped, but continued incessantly to spit forth words and syllables with surprising volubility ; at each inspiration inhaling breath to the utmost capacity of his lungs, he expended all, even to the last

thimbleful; and then, but not before his voice had almost sunk to a whisper, did he refresh himself by a strong gulp, and, like Richard Lalor Sheil, talk as fast again as ever. All the time he flung his arms about, stamped with his feet, butted with his head at the audience, tossed forward one shoulder, and then the other, striking (like Homer's heroes) the palms of his hands as hard as he was able against one, or both thighs together, and twisted a body, naturally unusually flexible, into many uncouth attitudes.

The matter of his oration evinced strong talent, notwithstanding that, as it appeared to me, every word had most probably been previously committed to paper; at all events the style, frequently diluted by the introduction of comic scraps of poetry, was generally very superlatively redundant and inflated. He descanted physically and metaphysically, availing himself abundantly of metaphor and allegory; whence each particular sentence became a highly-wrought dense mass of thought and material, so strongly compressed, and containing figures of rhetoric, one so close on the heels of another, that it was really difficult to bestow on his speech, seriatim, the attention it deserved; and, consequently, long before he had finished, the pew-doors began to creek, and thick-soled shoes might be heard on their way out of the chapel.

Hitherto in the progress of his harangue, although he wandered from his subject now and then, first on one side, and then on the other, he never, in point of fact, altogether lost sight of it; at last, after expending his artillery of anathema and denunciation against gin and gin-drinkers,—“wretches,” said

he, "who pour down their throats liquid damnation!" he then palpably digressed, and finally wound up by a flourish in politics. As regarded the good cause he was pleading,—a subject as to which the hearts of all sorts, conditions, sects, and parties of men are in accordant unison, nothing surely could be more ill-judged than to resort to one whereupon of all others their minds are most disturbed and at variance; to have introduced politics in any shape was, at all events, inapposite, and more particularly as this little man, as nimble as a pea upon a tobacco-pipe, when once let loose, gave way to furious radical intemperance. In the line of argument which followed, he urged the practice of temperance upon his hearers, less as a moral virtue, than the means of concentrating their energies, thereby to oppose more formidable resistance to tyranny and oppression.

The orator was evidently now on his favourite topic, and his feelings, as he proceeded, becoming more and more forcibly excited, vented themselves in sheer bombast, his style became ludicrous, and he himself to all intents and purposes morally intoxicated;—harping upon the hacknied theme, piling paraphrase upon paraphrase, and soaring still higher and higher, he became to me, if not unintelligible, wholly uninteresting, and the consequence was, that in a few minutes I had almost ceased to listen.

At last, all at once, my attention was again aroused. Drawing to a close, he had reached his climax;—this was neither more nor less than to draw a parallel in character between the Saviour of the Christian world and—George Washington!!

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Notwithstanding the distance by land from Preston to Kendal is less than by the Canal, this natural disadvantage is compensated by the ease and rapidity with which passengers are conveyed by the quick passage-boats, in a sufficient degree to raise an effective opposition against the coaches; and reasonably, for no sort of locomotion can possibly be more agreeable. The distance by the road is forty-four miles, by the canal fifty-seven, seven or eight locks moreover are encountered by the way; all contiguous to each other, and about twelve miles north of Lancaster; nevertheless the voyage is performed by the boats within seven hours. The time of leaving Preston is half-past eleven in the morning, that of departure from Kendal half-past seven, the latter boats arriving at Preston at half-past one; when, according to arrangements made with the coach-proprietors, passengers are conveyed to Manchester by vehicles which wait upon the boats.

The "Water Witch" is a sheet-iron boat, a little more than seventy feet long, by five feet four inches broad, and draws, when light, only six inches of water. The "Swiftsure" is two feet shorter, four inches narrower, and heavier by about a ton and a half. Notwithstanding the difference in figure, both boats have a light canoe-like appearance, and are fitted up in a similar manner; a light awning of stout calico, dressed with linseed oil, effectually protects the passengers from the weather, though it sheds a yellow, watery light on the people's countenances.

This simple mode of preparing calico or linen-cloth is now much in fashion among the navigators of the Humber; the material, merely payed over

two or three times with a brush dipped in linseed oil, is rendered totally impervious to water; jackets thus anointed afford the wearers the advantage of light waterproof apparel, instead of the heavy Flushing garments formerly in use.

The embarkation at Preston is most commodious. A covered shed, thrown over the canal, encloses on both sides ample marginal space, so that passengers and their luggage are equally protected from the rabble and the weather.

My luggage was no sooner on board the Water Witch at Preston, than all being ready, at the shrill sound of a whistle, the horses started instantly on their way in a canter; of two horses, a boy rode the hindermost, driving the other in front by rope-reins. The steersman regulated the pace by the said whistle, and a horn, the former being a signal to the postilion to increase the speed, the latter to halt; the intelligent cattle evinced their sagacity, by eagerly anticipating not only each of the two sounds, but also every motion of the driver.

The proprietors of these canal-boats have endeavoured to establish a theory, which, setting philosophy aside, is surely a bad one for horses: they maintain, that the animal works more at his ease at the rate of ten miles an hour, than at eight, or even less; because the swell at the head of the boat is, they say, by the greater velocity, surmounted before it accumulates, whereas at less speed the increase of the obstacle more than counterbalances the diminution in labour. Much depends, at all events, upon the width of the canal, the depth of water, and so forth; but, in practice, I think the experiment fails; I never saw horses more defeated than these,

although the stages were usually only four miles. At the end of each they sweated and panted, as if they had undergone a severe burst with foxhounds; there they stood planted as it were, reeling and shaking their tails till led away. We were generally on these occasions very soon out of sight, for on changing the cattle no other ceremony was requisite than merely to unship the eye of each trace from the hook, and fix the other instead; nay, so quick were our movements, that frequently, on whisking round a corner, a traveller was seen waiting for a passage, and within the space of twenty seconds, from the moment the boat stopped till she proceeded on her way,—from the blast of the horn to the sound of the whistle, the packages and our new companion, the owner, were all together gliding away on our voyage. Even with the advantage of short stages, the cattle, unless highly bred and in tip-top condition, are unequal to the work assigned to them; twice during the passage, one horse, on both occasions, overpowered by the draft, as narrowly as possible escaped being soured in the canal. Such casualties having frequently happened, have at last suggested an alteration in the towing-path, now gradually carried into general effect. Instead of making the slant inwards, it is now inclined the contrary way; thus not only are accidents in a great measure prevented, but a better foot-hold and purchase against the draft is afforded to the animal. It is extraordinary, for how long a period in many cases, principles, diametrically opposite to common sense, are acted upon.

After five minutes' delay at Lancaster, for the purpose of exchanging passengers, we glided rapidly

onwards, over the aqueduct thrown on five circular arches across the river Loyne; hence is a fine view of Lancaster Bridge, about a mile below,—an elegant structure, level in its surface, like that of Waterloo, and on five elliptical arches.

The locks, as has before been observed, are all contiguous to each other, and here the dexterity and dispatch with which they are surmounted, one after another, is very remarkable; the rise is nine feet each lock. The passengers disembarked during the process, and re-embarked on the summit of the level, after the *Water Witch* had completed the whole ascent. On this occasion a couple of ladies, with their gawky footboy, very narrowly escaped a serious ducking; being exclusives, they preferred remaining on board to accompanying the herd of passengers ashore, while the boat was mounting; during one of which feats the *Water Witch* herself had well nigh been smashed. Notwithstanding the skill of the postilion, who in ordinary cases no sooner managed to get his vessel clear of one lock, than he towed her forwards in a smart canter about a hundred yards along the intervening space to the next, the catastrophe aforesaid was with difficulty prevented. The *Water Witch* had entered the lock with considerable impetus; the horses, as usual, were speedily detached, and a rope was thrown ashore. The man on shore giving the rope a turn round a short post on the bank of the canal, then applied his strength to check the way of the boat, but by misadventure it slipped over the head of the post, the *Water Witch* meanwhile making headway, and dragging the man along the bank towards the head of the lock. He on shore, a sturdy little

man, held on like a bull-dog, nevertheless, the boat overpowered him, and collision within a few seconds appeared inevitable: at this crisis another individual very seasonably threw his weight into the balance; yet both together hanging upon the rope, and straining with all their might, notwithstanding their utmost exertions, were hardly able to restrain the vessel from striking with tremendous force against the inner gates of the lock.

The above circumstance refers to the only point of management regarding these boats, as to which a little additional precaution seems necessary. While under way, and with an impetus upon them, they have no other means of stopping suddenly than by the aforesaid mode of throwing a rope ashore; notwithstanding it happens not unfrequently that barges are encountered unawares, either at the bendings of the canal, or on passing through bridges. On more occasions than one during the passage, the Water Witch ran bump on shore, with a momentum neither agreeable to the passengers nor profitable to her owners.

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The Legh Arms, at Newton, is a spacious inn, immediately adjoining the Liverpool and Manchester railroad; and as the front rooms are furnished with French windows and balconies, the situation, on a summer's day, is particularly suited to the purpose of observing the numerous and various trains of steam-carriages as they rush by. Each train, as it approaches, is preceded for many seconds by a sound as if a legion of winged horses were cleaving the air at a distance; and as one continues to listen, they seem, as they advance, furiously

panting and clapping their pinions against their sides, till whizzing along, like skyrockets, they pass, one after another,—a succession of moving objects rapidly glancing onwards in the variety of a magic lantern. Frequently a heterogeneous group, drawn by a single engine, is seen on its way; such as, for example—first, two or three carriages laden with pigs, packed as closely as pigs can possibly be, notwithstanding that two or three Irishmen take leave to stand in the midst; as to how the latter find space, nobody knows but themselves; following these, half a dozen high railed vehicles, having two stages or pens, the one above the other, and both containing lots of patient sheep; next, in large, deep, open carriages a lot of calves,—perhaps oxen or cows: then logs of timber, huge in size, and of unusual length; and finally bringing up the rear, ten or a dozen laden waggons, each covered with a tarpauling, altogether like so many little haystacks;—upwards of a hundred tons of matter, moving forwards with the impetus of a thunderbolt.

The Legh Arms, besides affording to the visiter such advantages of sight and sound, being nearly midway between Manchester and Liverpool, thus becomes one of the most desirable rural points in the vicinity; however, on the present occasion, I had a specific purpose to answer in coming hither; my object was to remain till the next morning, in order to depart by the branch railway train to Wigan, on my way to Preston, thence by the canal route before mentioned to Lancaster, and across the sands of Morecambe-bay to Ulverston and Whitehaven.

At eleven o'clock in the morning, on the arrival

of the trains from both extremities of the line, the Liverpool and Manchester passengers having been collected, the whole were consigned to a single covered carriage, and taken in tow by the engine appointed to the service. Nothing in the world can be more exhilarating than locomotion on an established railroad; but of all travelling, that on a branch line is the most irksome; delays and impunctuality being unavoidable, owing to the uncertain number of people to be conveyed. In the present case, as there was only one carriage load of passengers, after frequent stoppages and detention in hopes of more, the surplus power of our engine was expended in pushing before it half a score of laden coal-waggon;—in our rear, heavy goods and enormous logs of timber were hooked astern. Between two such heavy, uncontrollable bodies, one before, the other behind, we were, especially on going down the inclined plane, most cruelly jerked and bumped all the way to Wigan.

It is singular that at the present moment there is no other regular public conveyance by land for passengers between the two opulent towns of Wigan and Preston, than a vehicle, licensed to carry four inside and four outside, luggage unlimited, and drawn by one unlucky horse. I know not whose province it may be to regulate the maximum of load allotted to an unfortunate animal nowadays on the public roads; for, I believe, so long as the proprietor pays for his licence, little trouble is taken to ascertain particulars; however, my object is merely to remark, that, notwithstanding the apparent want of traffic on the line, a railroad is actually in progress. Hence it would appear that the canal traffic

between any two points is no criterion whereby to judge of the necessity of a railroad; the change of circumstance, by the virtual diminution of distance, being alone sufficient to engender new purposes and objects connected with trade and locomotion; precisely as is the case on a pond of water, whereupon shoals of waterfowl solace themselves during the summer, but which, when covered with ice in the middle of winter, attracts a new description of visitors altogether. By this projected railroad the present steam-communication between Liverpool and Wigan will be extended eighteen miles to the northward, as far as Preston, and thence, by the Preston and Wyre branch, to the mouth of the river Wyre. In the meantime, the proprietors of the Preston and Kendal canal conduct operations with undiminished energy, having, besides those already described, launched a new iron boat during the present year. Having availed myself, on the present occasion, of the one-horse vehicle aforesaid from Wigan, to Preston, my purpose was to go by the passage-boat as far as Lancaster, and depart from thence across the sands of Morecambe-bay the next morning. This voyage was rendered particularly agreeable by the companionship of a young and highly-educated Quaker couple, with whom I really regretted it was not then my lot to proceed as far as Kendal; however, when we arrived at Lancaster, although the halt is longer here than during any part of the passage, I had scarcely time to look around, and deplore the change of scene and destiny, whereby I was left behind, bag and baggage, pacing on the Quay, than the whistle was blown, the horses cantered away, and the boat quickly glided out of sight.

In a humour, the first moment of landing, to be out of conceit with my present quarters—in due course, as I proceeded up the town, I found more reasonable grounds of dissatisfaction, and particularly when, on requesting an apartment in the principal inn, I was conducted to the garrets. The assizes were unluckily on that very day at their zenith: a festival, of which the signs and phenomena below stairs, and in the streets, were apparent;—bloated country coachmen, in their best liveries, stood lounging in the stable-yards and gateways; every servant in the house jostled and trod on the heels of his fellow; dinner tables were laid in all the parlours; sand, in preparation for the scuffle, was spread on the floor instead of carpets; the lawyers ran to and fro in their wigs, and a group of hungry farmers in the passage, all panting and eager for the fray, whetted their large teeth, and licked their lips, as they snuffed up the sweet savour, or fragrant odour, from the kitchen.

The state of things being thoroughly at variance with my fancy, I resolved to take myself off as soon as I possibly could; and to that end, in the space of an hour, I mounted a Kendal coach, having arranged with the coachman to be set down at the village of Slyne, three miles distant; thence I proposed to make my way a mile to the coast, and remain at the small marine village of Hest-Bank till the next morning. At the latter place, the vehicle, which departs every morning from Lancaster over sands to Ulverston, calls daily on its way.

Having arrived at Slyne, as I found no means of removing my luggage, I was induced to accept an offer, made and received somewhat in a hurry,—in

fact, during the moments of rumination, and while I was thinking how truly and properly the word luggage among the ancients was rendered by “impediments,” the cargo had been adjusted, and my property was actually trundling along in a wheelbarrow, whose master, together with myself, trudged along the lane together. I had no sooner time to scan the dimensions of the former personage, than I was really lost in admiration at the spirit of an ancient volunteer:—a little wizened old fellow, as dry as a bundle of sticks, and as light as an owlet—driving the barrow manfully before him, and as he stalked onwards, his joints and jaw-bones most awfully quivering under the vibratory motion; nevertheless he still maintained his pace, and when I asked him whether the labour were not too heavy for him, all he replied was, that the barrow was a good barrow; and a good barrow indeed it was,—a machine, well poised, long and narrow in the body, with a small cast-iron wheel. “He earned his livelihood,” he said, “by his barrow; sometimes he gathered whin sticks or muck; and these articles he swapped for coal: his wife was older than himself, and he had a son, a lad turned of eight and forty.” I asked his own age. “A good way aboon seventy,” said he;—and then he related part of his history,—how, “once upon a time, he possessed fifty pounds, and a friend, and how he lent his money to his friend, and how the latter died and he lost all;” and how again “he worked hard, and put by four-score pounds more, and put it into a country bank, and how the bank broke, and away went his eighty pounds after the fifty,”—and here the poor old man set down the barrow, and drew the back part of his

sleeve across his forehead. "I'll give you a spell," said I;—so the old man walked on at my side, and I wheeled the barrow. As he continued his simple narrative, he proved himself, in my estimation, a piece of good English stuff, without a grain of selfish pity in his composition;—and he had scarcely concluded his story, when we turned round a sharp corner, and all at once I unexpectedly encountered the full front of the Hest-bank Hotel. I drove the barrow up to the door, discharged my *voiture*, gave the old man an extra shilling to pay his journeyman, and then addressed myself to the landlady, by whom I was conducted to the parlour of a quiet country inn, quite as respectfully as if I had arrived in a chaise and four.

Notwithstanding the good intentions of my hostess, the parlour smoked so dreadfully that it was impossible to remain in it; and as there was only one other apartment disposable, I was accordingly ushered into the public room, then occupied by a Yorkshire farmer and his wife; the former of whom sat in an easy chair, a pipe in his mouth, and a glass of gin and water on the table before him. When I entered, he very politely offered to lay down his pipe, fearing the smell of tobacco might not be agreeable; but I begged him, by all manner of means, to puff on, and so we entered into conversation. He said, that "he had been residing here some days, by order of his doctor, but that, somehow or other, he thought the sea air was no more use to him than the air on his own farm;" and here he reached over sideways, towards a small triangular implement, on the ground before him. "He had been troubled," he said, "with a sort of liver complaint," and then

he nodded to his wife, who presented him with his glass of liquor.

The cause, and its effect, were, to my mind, in a moment clearly visible ;—gin had made its first inroads on a fine English constitution ; the farmer had a dry, grunting cough, and his complexion, once like a rosy apple, had already begun to turn yellow. His obedient wife, whenever he had occasion for a sip, (and this was tolerably often,) was always at her post, and having presented him his glass, remained standing while he drank, and then placed it again on the table ; all the time he made her no acknowledgment, but sat leaning backwards in the elbow chair. Early the next morning, I saw this happy couple drive away from the inn together, in a light shandry cart, drawn by a stout, long-tailed, black cart-horse.

* * * * *

The Hest-bank Hotel is situated on the banks of Morecambe-bay, the sands, from eight to twelve miles in breadth, being fordable at low water. As the tide recedes from this wide space, the former tracks of vehicles, not yet effaced by the waves of the sea, have an extraordinary appearance ; tracing various curves, all converging in a direction leading, one would imagine, into the middle of the sea. On the opposite coast, the Cumberland mountains rise in the distance, and form a noble panorama. The intervening watery space, when viewed by a stranger, seems to portend a perilous passage, though without reason, for among the thousands who in the course of their ordinary occupations undertake it, even old women occasionally officiate as carriers. As the main channel is never perfectly dry, appearances are

rendered still worse by observing the numerous carriages from the shore on their way across, one after another; for although actually keeping together, and following nearly in the same line, that line is so extended and circuitous, owing to the uncertain ground and quicksands, that, seen at a distance, they appear to diverge apart, away from one another, and spread themselves at hazard all over the bay. Accidents, with proper precaution, are nevertheless rare, and carriers depart from hence every day, and return the next.

A couple of hours before low-water, the carriage arrived from Lancaster, in which I had engaged to cross these sands to Ulverston; it resembled a baker's covered cart, and was drawn by a pair of well-bred horses, one in the shafts, and the other on an outrigger. A few years since, the journey was performed by a four-horse coach, which continued to run regularly for a considerable period; but the breakage and casualties, in the end, overawed the proprietors, and forced them to abandon the line; the same coach now travels by the circuitous road inland; and the said proprietors, as a matter of course, now denounce the passage as dangerous, and threaten with difficulties and drowning those who venture on their ancient track.

Three guides, who receive a yearly stipend by ancient municipal regulations, besides any small gratuity that passengers may be willing to give, are in constant attendance, at the three critical points, or fords, where rivers obstruct the passage; wherefore, every day, that period of ebb tide when the water has sufficiently fallen, is the time of rendezvous, and then accordingly the various carriers and

persons about to cross, assemble at Hest-Bank, and in a line so far extended as barely to keep each other in sight, start at straggling intervals, one after another; however, there is sufficient time between ebb and flood to allow a moderate share of caprice or delay.

On the present occasion, the vehicle already described, as is usually the case, the first in the train, made the descent upon the sands, almost close to the inn, the ground being tolerably sound under foot; while the landing-place on the opposite shore, eleven miles distant, was not perceptible. We had proceeded but a little way when the first guide overtook the carriage, and immediately took his place in front; a hardy, weather-beaten veteran, in dress resembling an old-fashioned Kentish or Sussex smuggler, and mounted on a very old, sporting-looking, white mare. We soon arrived at the river Keir, across which stream, according to the duty of his office, he prepared to conduct us; accordingly, holding the skirts of his coat together with one hand, over the pommel of his saddle, as the white mare plunged up to her girths in the water, our driver kept his vehicle close to the animal's tail. The breadth of the river was about a couple of hundred yards; the tide set out exceedingly strong, and the water reached above the bottom of the carriage, on which a heavy stress was laid. The horses, both active and well bred, reeled occasionally from side to side, exerting their utmost strength to stem the torrent; in the meantime it became indispensable, in order to counteract the delusive impression on the senses caused by the motion of the water, to keep the eyes fixed on some stationary point a-head;

such as a small pool of water, or a hillock of sand. Every one must have experienced the sensation I allude to, in fording a river on horseback; in short, it seemed as if we were carried away, horses and carriage, with a celerity equal to that of the stream, and in an opposite direction. The white mare and her rider had no sooner emerged, than the latter, turning short round, rode to the side of the carriage, and had no sooner from myself, the only passenger, received his gratuity, than he made his way back again homewards, through the stream, and left the remaining carriages to follow one another.

The river Ken, a few miles a-head, was our next obstacle. The guide was true to the rendezvous, and a rougher-visaged personage I never beheld. This man's duty is more laborious than that of the former; instead of living close to the point of his occupation, he resides on the northern bank of the bay, two or three miles from the ford; consequently, in order to be ready at his post, he is obliged to remain in this unsheltered spot, exposed to the wind and rain, at times for hours together. He, however, provides himself accordingly, and regularly makes his appearance in a small covered cart, drawn by a hardy, long-haired cob; this vehicle not only serves his purpose as a sentry-box, but affords, at the same time, a partial shelter to the animal. The owner seated within, so soon as he perceives the approach of travellers, saddles his cob, mounts, and rides him across the ford, in order, on his return, to perform the office of guide, in the manner before related.

Previous to reaching the northern shore of the bay, I observed some fish "balks" on the sands; a

contrivance commonly adopted hereabouts, and consisting of two straight rows of stiff stakes, surmounted by strong netting; altogether about six feet high, and meeting in a right angle. The fish are taken on the sand within the balk, at low-water, and the driver informed me that the owner had taken, on a particular occasion, twenty cart-loads of herrings in one tide; four thousand being reckoned as a cart-load. Of late years the herrings have visited this coast in increased numbers, although at a period too late in the season to be in good condition.

We now landed upon and crossed that nook of land, which divides Morecambe Bay from Leven Sands, which sands receive their name from the river Leven. Upon Leven Sands we were met by a third guide, who conducted us across the said river precisely in the same manner as the other two. As this ford is not far removed from the shore, many persons are in the habit of crossing without a guide; consequently, for their convenience and safety, the track is marked out by sprigs of broom—these, firmly stuck in the sand, although covered by the sea at every tide, yield and bend to its force, and remain a very long time before they are washed away.

It is not very easy, without making the experiment, to ascertain the precise degree of danger to be apprehended on crossing Morecambe Sands, as people's opinions on the spot, either owing to interest or prejudice, differ very considerably. Some say there is no danger at all, others assert the direct contrary; nevertheless, after all, the discrepancy will be found to rest in an exceedingly narrow com-

pass, for while security depends upon a perfect knowledge of the sands—danger, on the contrary, proceeds from the want of it. Thus, though some maintain the sands are nearly as safe as a turnpike-road, and others assert that the passage is extremely hazardous, both parties, provided one proceeds in his buggy alone, and the other be attended with an experienced guide, are equally right. The first ford, namely, that across the river Keir, without a guide, is absolutely perilous; the torrent being at all times as strong as it is convenient to stem, and very often insidiously increased by precarious freshes from the mountains: guide or no guide, the carriage is always in danger, for a hole or slough is now and then encountered, where the vehicle unavoidably sticks; in case of such an accident, the traveller must walk, perhaps, four or five miles in distance, the best way he can, across an extent of plain so great, and intersected so frequently by tortuous branches of the rivers, that, without a guide, and unable to swim, the chances are ten to one against his reaching the shore at all.

Close observation and perfect knowledge of localities must of course be indispensable; where the violent forces of wind and tide are in continual action upon a yielding surface of thirty or forty square miles of sand. At every flood, holes and quicksands change their position; even the main channel of the river becomes often blocked up, and then bursts forth in another direction. On the present occasion, I saw a large lake of still water, the only remaining indication of a former course of the Keir; which, accidentally opposed by a bar of sand, the consequence of particular winds or currents, had

made itself a new channel, diverging some miles from the old one. The driver of the carriage observed that not only ere long would the aforesaid lake, in common course, disappear, but the present channel of the river, within a few months, be abandoned for a new one.

The approach to the town of Ulverston from Leven Sands is in the highest degree picturesque: the town, embedded among mountains, is clean and thriving; a stream of clear water runs through the streets, and a broad canal, a mile and a half long, leads to the sea. Iron ore is abundantly shipped from hence, as it is also from Whitehaven, to be smelted in Wales. At the latter place especially, a region of coal, one would imagine the material would be smelted on the spot; but it is not the case, neither is there any establishment for the purpose in the vicinity;—the ore is all sent to Cardiff. The landlady at the inn, where I was comfortably lodged, placed various sorts of preserved fruits on the table, thus exhibiting the first specimen I had seen of North-country housewifery.

The next morning I pursued my journey to Whitehaven, in a covered car, or “tub-gig;” for which vehicle the title of the “*conveyance*” is generally applied; the emphasis laid on the first syllable, and the word used, not in a general sense, but as a particular designation. The passengers, including myself, consisted of five persons inside, drawn by one horse: among these were two ladies in silk gowns, the elder of whom smoked her pipe at every halt, in the chimney-corner of the several baiting-houses.

As our road lay through an exceeding hilly

country, I was anxious about the poor animal engaged in our service, till I found the driver inclined to make due allowance on the score of speed; eventually we were eleven hours performing the forty-four miles—exactly four miles an hour; leaving Ulverston at six in the morning, and arriving at Whitehaven at five. We breakfasted at the village of Broughton, at which place the proprietor of the vehicle resides: hither we were driven by the son; from hence, by a fresh carriage and horse, the father took us in charge. Thus far we had passed through a charming country, among the most picturesque spots of a mountain district, the road continually undulating, the hills, nearly approaching the sea, not lofty. The garden at the inn at first sight appeared to be in a more forward state than compatible with the time of year, for during the journey, we had in fact enjoyed the appearances of altitude without the reality. This genial climate, on a low, sheltered spot, adjoining the sea, was the more agreeable when contrasted with the bleak temperature of the lofty mountains around. The privet hedges were particularly luxuriant, and a quick hedge, the fellow to which I never saw, planted in a double row, and cut quite square, was so thickly matted together and springy, that one might have walked on its top: literally, the surface would have formed a very excellent bed to rest upon, provided only that the sleeper were equipped with a leathern jacket.

The inn was in every way suitable to the inhabitants of a secluded village; a few oil paintings in the parlour were above par; one, particularly, a portrait of George IV. when a youth, worthy of a good collection.

From Broughton the road proceeds inland, until it bends again down to the sea at the town or village of Ravenglass; a small cluster of houses, round about which, almost on all sides, the tide appears to rise at high-water. I would willingly have remained a few hours to see a taking of salmon at low-water, by means of barks, then set for these fish close to the town: my reluctance to depart was not inaptly represented by the snail's pace of the conveyance, as it tardily wended its way through the small towns of Gosforth and Egremont, to the end of the day's journey at Whitehaven.

THE END.

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